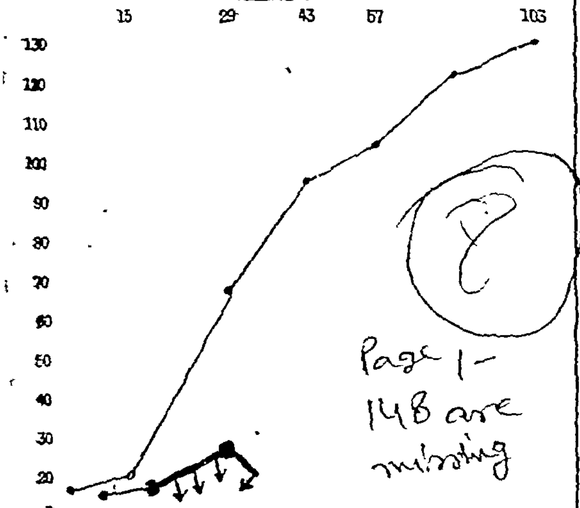
[illegible] or two days longer on that diet. After the change of [illegible] there was a rapid and immediate improvement in the condition of all three animals. The result was even more striking than in the case of the three animals the diet of which had been changed to bread and sweet milk (see chart). All three animals were alive and in fair condition in the middle of October, their average weight at that time (128 grammes) being, however, below the normal.

B. In the second generation.—The recuperative power in the second generation of meat-fed rats was tested in four animals taken from two litters, other four animals from the same litters being employed as controls. After weaning, the eight were kept on a horse-flesh diet for two weeks; in this period their weight was little more than maintained (see Chart 8). Two from each litter were then transferred to a bread and skim-milk dietary, the remaining four being kept on the horse-flesh diet. All four meat-fed subjects succumbed in two to three weeks, the four transferred rats living and gaining in weight in the striking manner shown on the chart. The later history of these four rats is of great interest. The animals were killed when eight months old, their average weight being 150 grammes. Their health during the later months was very defective, the symptoms manifested being, in order of onset and severity (*a*) accelerated and noisy respirations, dry râles being audible a considerable distance from the hutch and (*b*) a dry condition of the skin with roughness and loss of hair. These clinical features considered alongside of the other facts recorded in this paper point to the general conclusion that the symptoms from which the animals suffered in later life were etiologically related to the use of the defective dietary in very early life. There can, it appears to me, be no reasonable doubt that the symptoms observed were the result of the premature loss of some vital function or functions, and more especially of those concerned in warding off bacterial infection from the respiratory, and probably also the alimentary, tract.

CHART 8.



Recuperative power in second generation of meat-fed rats. The faint line equals the average weight of four rats bred on an ox-flesh diet which were transferred to a bread and skim milk diet at the age of six weeks. The dark line equals the average weight of four rats from the same litters which were not transferred but were kept on the meat diet.

Summary of results.—These experiments prove that the excessive use of a meat diet in rats is attended with the following results: (1) growth is retarded; (2) sterility is induced if the diet is commenced in very early life; (3) the power of lactation is diminished; (4) a permanent weakening of the resisting power of the animals is induced by the use of an excessive meat diet in early life, the animals succumbing to disease at an unusually early age; and (5) there is a high death-rate in the offspring of animals fed on an excessive meat diet.

Commentary.—The facts recorded have an interesting bearing on the two questions of physical deterioration and high infantile mortality that are engaging medical attention at the present time. With regard to these conditions there is no doubt that not one but several factors are concerned in their production. There is equally little doubt that among these factors the question of diet occupies a foremost place. The defects in a diet may lie in one of several directions. The food may be of fair nutritive value but insufficient in amount; on the other hand, it may be of high nutritive value, excessive in amount, and of a nature which exercises an injurious effect on the organs and tissues. It is important that some light on this subject should be looked for from experimental medicine, and in view of the increasing prevalence of the consumption of animal food in this country it is of special importance to determine the effects on the organism of an excess of animal proteid food. The main interest of my experimental results lies in the clear evidence submitted that an excessive meat diet can itself induce in animals—whose dietetic habits are fairly akin to those of man—some of the most prominent symptoms of physical deterioration—viz., defective general physique, deficient power of lactation, diminished fertility, and a high infantile mortality. I believe that these symptoms are, to an important extent, comparable to those prevailing in the human subject at the present time, the symptoms in man having, however, been established in a more gradual manner, their onset being contributed to by the operation of other etiological factors.

Some points of practical importance are brought out in the record. Of these the most noteworthy is the importance of a proper dietary in very early life. My experiments showed that the use of an excessive meat *régime* in early life induced a serious and permanent weakness of the animals, which, however, remained for a long time latent after the substitution of a physiological dietary. Clinical experience has led me to think that we have here also a close parallel in diseases in the human subject, and more especially in the class of affections commonly included under the terms gout and goutiness. Be that as it may, the experimental results indicate the importance of directing particular attention to the early dietetic history of patients so far as these are obtainable. The necessity for this will be further emphasised by the subsequent records of the structural changes in the organs and tissues observed in the course of these experiments.

The experiments referred to in this paper were conducted in the physiological laboratory of the University of Edinburgh with the assistance of grants from the Moray fund of the University and the Carnegie trust, and I take this opportunity of expressing my great indebtedness to Professor Schäfer for invaluable assistance received throughout the investigation.

Edinburgh.

OUTBREAK OF PNEUMONIA IN A REFORMATORY SCHOOL.

By THOMAS OLIVER, M.A. DURH., M.D., LL.D. GLASG., F.R.C.P. LOND.,
PHYSICIAN TO THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.

THE following notes are published in the hope that other physicians drawing their experience from a larger field may be induced to express their views upon some such similar outbreak with which they may have perchance been brought into contact. The outbreak to which I refer occurred fully four years ago. Although at the time I was much interested in the illness I have refrained from publishing the notes of the cases in the hope that some new circumstance might arise which would throw fresh light upon an epidemic of pneumonia that was as sudden in its onset as it was obscure in its causation. I have been informed that outbreaks of pneumonia have recently occurred in other reformatory schools in England and in Scotland, the origin and causation of which are equally mysterious.

Admittedly a microbial disease, pneumonia or pneumonic fever is not a pathological entity due to one and the same micro-organism. The malady owns many causes and yet while an attempt might be made to include under the term pneumonia only the croupous form of the disease, the result of a specific pneumococcus, and to regard all other forms as simply inflammation of the lungs, this would not advance our knowledge, for while the pneumococcus is without doubt the cause of pneumonia there are cases of pneumonia in which this organism is not detected. Asthenic types of the disease are associated with a variety of micro-organisms. Croupous pneumonia, or that due to the pneumococcus of Fränkel, is usually preceded by a rigor, is attended by physical signs pointing to consolidation of lung, runs a definite course, and reaches a crisis within nine days, but it is seldom a disease that becomes epidemic. When it assumes this character it is more than likely that the malady is not due to the pneumococcus alone but to other micro-organisms as well, and therefore the result of a mixed infection.

The industrial school to which I was called by the visiting medical officer is in the neighbourhood of Newcastle-upon-Tyne. It has accommodation for 200 boys and is nearly always full. During the month of April of the particular year in question the only entries in the log-book were one case of Pott's fracture, one case of skin disease, and three cases of abscess. On May 17th two boys, aged 13 years respectively, were seized with pneumonia; five days later (May 22nd) other three boys, also aged about 13 years, were added to the list; ten days later (June 1st) a sixth case occurred in a boy 14 years of age; on June 5th two more cases in boys aged nine and 12 years respectively and on June 23rd the ninth case occurred. This boy, aged 15 years, had complained of headache in the afternoon but so slight did his ailment seem that it was not considered necessary by the governor to summon the medical officer. During the night the nurse, who was attending to some boys in the dormitory, gave him at his own request a drink of milk. A few hours later the lad was found dead in bed. On the following day I made a necropsy. The body was that of a well-nourished boy. Rigor mortis was passing off. There were no signs of external bruising. The pericardium contained a small quantity of free fluid. On the surface of the heart were numerous small petechial hæmorrhages. The heart itself was healthy. There was a small quantity of serous fluid in the left pleural cavity. The base of the left lung was adherent to the diaphragm. On section the lower lobe of the left lung was found to be the seat of the early stage of pneumonia. Beyond being slightly adherent to the diaphragm the right lung presented nothing abnormal. The stomach contained about two ounces of grumous fluid; its mucous membrane as well as that of the intestine was healthy. The liver was large but healthy. The spleen was very much enlarged and pulpy. The kidneys were congested There were no enlarged glands in the mesentery and no signs of tubercle or of peritonitis. Beyond being paler on its surface than usual the brain presented nothing abnormal The blood was extremely fluid. The opinion come to by the medical officer and myself was that the boy had died in collapse in the early stage of pneumonia. A bacteriological examination of the blood and fluids was unfortunately not made.

Looking back upon the history of the outbreak it will be observed that in all eight cases of pneumonia occurred between May 18th and June 5th—i.e., in 18 days—and that the ninth, the last and only fatal case occurred 15 days later. In the expectoration of one of the first two boys who fell ill tubercle bacilli were found in the fourth week, yet this lad not only made a good recovery, but three years after the illness is reported to be quite well and strong and earning his living as a labourer at some iron works. In none of the other cases were tubercle bacilli found. The after histories of these lads obtained four years subsequently are interesting. The youths are all quite well.

In their clinical aspects the illnesses were ordinary croupous pneumonia. There was nothing unusual or peculiar in the course they ran. In trying to determine the cause of the outbreak we were struck by the fact that most of the cases occurred in one large dormitory in which the sleeping accommodation was overcrowded and the ventilation of the room was defective. The window lighting of this ward, too, was deficient. A new range of windows was put in the blank wall. The other points were at once attended to. Since then not only have there been no fresh cases of pneumonia but the health of the boys has been remarkably good.

I am but giving expression to the opinion of my confrères when I say that it is no uncommon thing when pneumonia is prevalent in a town for the disease to break out and linger in certain streets compared with others. A [illegible] while ago I was asked to see in consultation in a neighbouring town several cases of pneumonia in succession within the space of three weeks. Most of the cases occurred in the street in houses not far distant from each other, also in two or three adjacent streets. Similar outbreaks in institutions, such as schools, barracks, &c., and of these have been traced to the escape of sewer air the sleeping rooms. When several cases of pneumonia thus occurred in close succession there has generally been overcrowding as well.

The fact that death occurred in the case above mentioned within 24 hours of the commencement of the illness rather removes the case from the category of ordinary pneumonia, for in croupous pneumonia it is rare for death to occur before the third or fourth day. Much depends in any case upon the virulence of the microbe and the resistance of the individual. Irritant gases when respired provoke acute bronchial and pulmonary congestion but non-irritant gases are not considered to have any such effect and yet I have found animals die from acute congestion of the lungs after the inhalation of carbon monoxide, which is not usually regarded as an irritant; and men are known to have died from a similar cause, the only gross lesion found after death being acute inflammation of the lungs. What there is in sewer air over and above the gas itself or combination of gases to cause pneumonia we need not discuss. It is for our present purpose enough to know that sewer air can cause pneumonia. Typhoid fever and intestinal toxins from improper food, as in the Middlesbrough epidemic of 1889, are also causes of pneumonia and so too is influenza. There was nothing in the outbreak at the reformatory school to suggest an influenzal origin. The rapidity of development, the crowding of the cases into a brief period of time and the fact that most of them occurred in one dormitory, all point to the cause or causes having been in the dormitory itself, an opinion confirmed by the disappearance of the malady after the ventilation had been improved and certain structural alterations and rearrangement of the sleeping accommodation had been effected. The condition of the lung found in the boy, accompanied by petechial hæmorrhages on the surface of the heart, recalls some other form of toxæmia than that caused by the pneumococcus, but since under the term pneumonia are included as already stated, many diseases, not all of them due to one and the same microbe, it is impossible in the present state of our knowledge to do other than include the above under the wide category of pneumonia.

Newcastle-upon-Tyne.

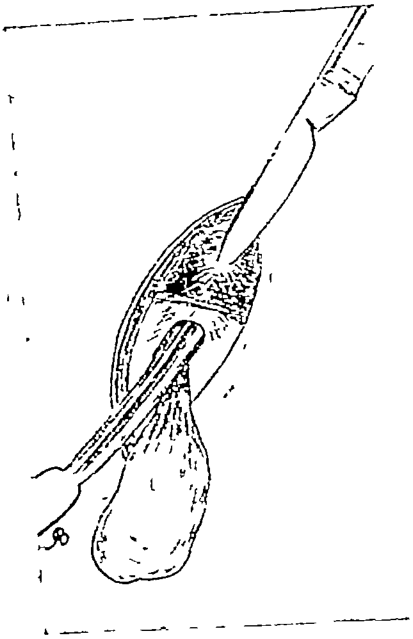
THE RADICAL CURE OF FEMORAL HERNIA.

By ASLETT BALDWIN, F.R.C.S. Eng.,
SENIOR ASSISTANT SURGEON TO THE WEST LONDON HOSPITAL; LECTURER
ON PRACTICAL SURGERY AND TEACHER OF OPERATIVE SURGERY
AT THE WEST LONDON POST-GRADUATE COLLEGE, WEST
LONDON HOSPITAL, HAMMERSMITH-ROAD, W.

For some years past I have been practising the following operation for the cure of femoral hernia with, as far as can be ascertained, a uniformly successful result. One of the patients, a woman three months pregnant, had an irreducible rupture; she went to full term. The child is now three and a half years old and there has been no sign of a recurrence of the hernia. I have performed the operation upwards of 20 times; all the cases healed by first intention and caused no trouble whatever.

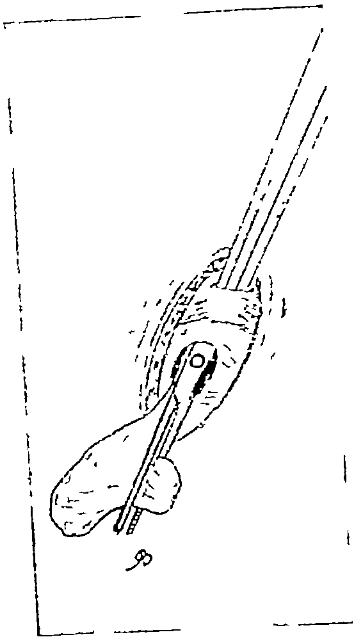
Method of operation.—A curved incision about one and a half or two inches long is made over the saphenous opening. The sac is isolated and more or less cleared of fat. If not already back the hernia is reduced. A slightly curved hernia director is now introduced up the crural canal in front of the sac and when its point is behind Poupart's ligament it is moved laterally so as for a short distance to strip off the peritoneum from the posterior surface of the transversalis fascia. The point of the director is now pushed farther upwards and tilted forwards so as to make the aponeurosis of the external oblique muscle project about half an inch above Poupart's ligament. A small transverse incision is now made through the aponeurosis, parallel to its fibres, on to the point of the director (Fig. 1), which is now pushed up through the opening. The latter is only just large enough to allow of this being done. A sinus forceps, Spencer Wells forceps, or small nasal polypus forceps—the last, being slightly curved, is more convenient—is now introduced through the opening.

FIG 1.



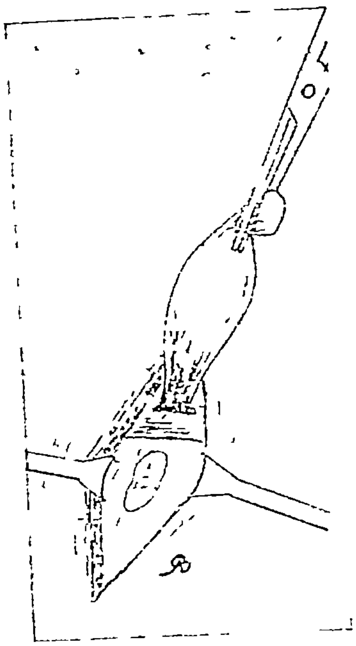
An incision being made on to the point of a director which has been passed up the crural canal and its point tilted forwards about half an inch above Poupart's ligament.

FIG. 2



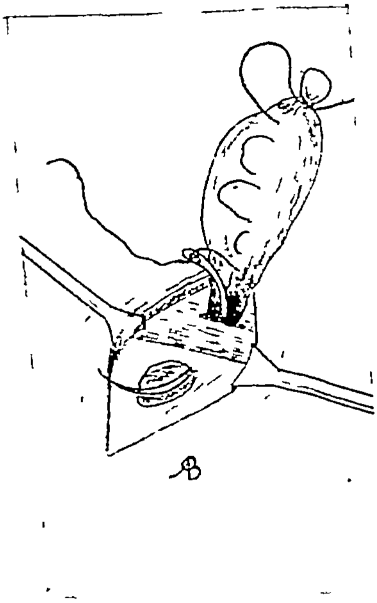
Sinus forceps passed through the opening above Poupart's ligament, behind the ligament and through the saphenous opening, and made to grasp the fundus of the sac.

FIG. 3.



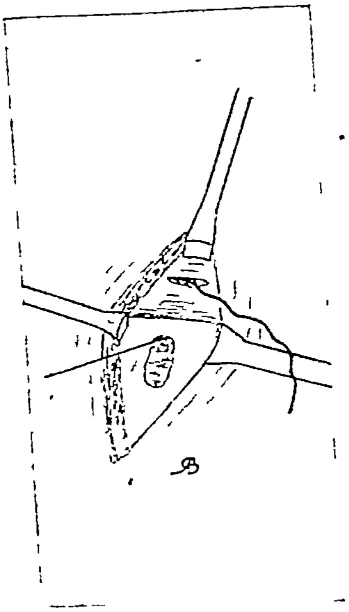
The sac pulled out through the opening above Poupart's ligament.

FIG 4.



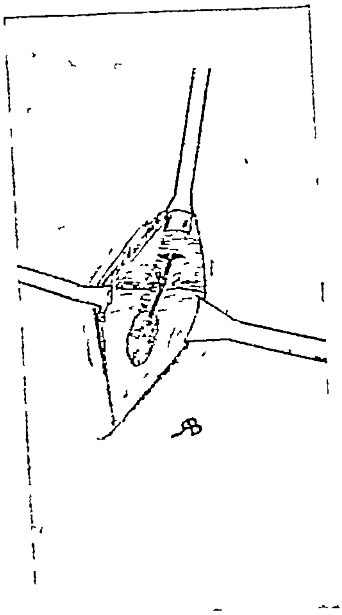
Needle threaded as described passed through the neck of the sac through the opening above Poupart's ligament, across the transverse ramus of the pubes, through the pectineus muscle and out through the saphenous opening.

FIG. 5.



The sac has been passed back through the opening above Poupart's ligament and rests behind the latter and the transversalis fascia.

FIG. 6.



The two ends of the thread are tied, fixing the sac in its place and obliterating the crural canal.

passed behind Poupart's ligament, and made to project from the saphenous opening; as this is done the director is withdrawn; in its descent it guides the forceps and prevents it from catching. The fundus of the sac is now seized by the forceps (Fig. 2), which is completely withdrawn, dragging the sac out through the opening in the external oblique aponeurosis (Fig. 3). The sac is now pulled out as much as possible and ligatured at the top of its neck. By this manœuvre no pouch is left in which recurrence may take place. A suture (silk, silkworm gut, and chromicised catgut have been used) is now passed through the fundus of the sac, the suture is drawn through to its middle and then tied, thus leaving two free ends of equal length, or this may be done before the sac is pulled up through the opening in Poupart's ligament, the thread being seized by the forceps and used to pull up the sac. But if the sac is large the thread may tear out and time be lost. One end is now threaded in a strong curved needle, one which will not rotate in the forceps which grasps it. The needle is now passed backwards and forwards through the sac several times, starting at the fundus and finishing at the neck, as described by Macewen for puckering the sac. The needle is now grasped in forceps, or a needle on a handle may be used, and its point is passed through the hole above Poupart's ligament, through the neck of the sac, down to the transverse ramus of the pubes, then by a turn of the wrist the point is made to slide forwards across the pubic bone, as close to it as possible, then to pierce the pectineus muscle and to appear through the inner part of the saphenous opening (Fig. 4). The needle is pulled through, bringing its thread with it. By drawing on the thread and by tucking the sac back again through the hole above Poupart's ligament by means of a stout probe or similar blunt instrument the sac disappears from view and comes to rest in a puckered-up condition behind the transversalis fascia and at the top of the crural canal, which it effectually roofs in. By this time the other end of the thread is hanging out of the hole above Poupart's ligament (Fig. 5). It is tied fairly firmly, but not too tightly, to the thread which projects from the saphenous opening; this fixes the sac in its place and fixes Poupart's ligament to the pectineus muscle, so obliterating the crural canal (Fig. 6). If necessary a second suture may be put in for this purpose but nearer the pubic spine. A suture is now put in to close the hole above Poupart's ligament and the skin incision is closed. Thus there are three distinct checks against the recurrence of the hernia: (1) the sac is ligatured higher up than is possible by the ordinary method and leaves no peritoneal pouch; (2) the sac is used as a buffer or roof above the crural canal; and (3) Poupart's ligament is approximated to the pectineus muscle and obliterates the crural canal.

It may be urged that the sac will slough and cause trouble. This does not take place. It no doubt becomes vascularised, converted into granulation tissue, and ultimately into fibrous tissue. Of course asepsis is necessary.

In strangulated hernia, where it has appeared safe to leave the sac and where time was precious, I have modified the operation by pushing the sac up through the canal, after having made a little space for it as before, and then sutured Poupart's ligament to the pectineus muscle. The result was perfectly satisfactory; but this method is not such a guarantee against relapse as the former, which I believe to be a genuine radical cure. The operation does not take long and no new or special instruments are required.

Manchester-square, W.

CESSATION OF THE PULSE DURING THE ONSET OF EPILEPTIC FITS,

WITH REMARKS ON THE MECHANISM OF FITS.

By A. E. RUSSELL, M.D. LOND., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE WEST LONDON HOSPITAL.

THE following case seems worthy of record, inasmuch as it is in accord with other cases which led many years ago to the enunciation of an explanation of the mechanism of epileptic fits which has, however, of late years fallen into discredit.

The patient was a man, aged 21 years. He had suffered from epileptic fits all his life. A maternal aunt had also been subject to fits all her life. The patient's fits commenced with an aura which was referred to by him as an indescribable sensation in his navel. As he experienced a well-marked aura he was given some capsules of amyl nitrite with instructions to break one and inhale it when he perceived the aura. This he was in time to do on one occasion and affirmed most positively that it warded off the fit. The majority of his fits occurred in bed at night; sometimes in his waking moments. Any emotional excitement was very apt to precipitate a fit. On April 21st he developed a fit in the out-patient room. He uttered a cry and was seen to be rubbing his hands together. His pulse was immediately examined for but was not palpable. He was just commencing the stage of tonic spasm when the wrist was seized. This tonic spasm lasted for about three-quarters of a minute, perhaps a minute. Dr. E. W. Hedley, who examined the other wrist also corroborates the absence of the pulse during the tonic phase. It was not easy to determine exactly when the pulse returned but we feel certain that the pulse did not return until the clonic phase. At first it was feeble but as the fit subsided it became fuller and stronger.

Dr. W. T. Harris of Chiswick has kindly told me of another case which occurred in his practice. A man came to have a tooth extracted. While applying the forceps the patient's head suddenly fell back and his face turned exceedingly pale. On feeling for his pulse Dr. Harris found it to be absent. Thinking that it was a severe syncopal attack he attempted to give the patient some sal-volatile but clonic convulsions intervened. These were slight and very transient, consciousness being regained almost immediately. Within a few minutes, however, the patient again turned very pale and became unconscious with tonic spasm. Dr. Harris again noted complete absence of the radial pulse, but at the commencement of the clonic stage a feeble pulse appeared at the wrist which gradually improved as the fit subsided. On questioning the patient he acknowledged having had two previous epileptic fits.

Remarks.—Cessation of the pulse preceding the onset of an epileptic fit has been noticed before. Thus Moxon[1] when examining a patient with cardiac dropsy notes: "I was feeling his pulse carefully; the beats were regular and of moderate strength.......I missed one, then another beat, and then found the pulse to have stopped so entirely that it made me look up suddenly at the man to see what was the matter. His face had become very pale, his head was turned towards his left shoulder, and the lip and cheek were twitching; the spasms then affected his arms, and he passed into a severe epileptic convulsion. At the time when I first noticed the pulse to disappear the man's arm was quite still. I tried to feel the pulse during the convulsion but there was so much muscular movement that I could not distingush it." On another occasion Moxon was examining the pulse of a man who had been admitted to hospital for uræmic vomiting and convulsions. "I took his wrist and felt his pulse; it was forcible and regular. I was feeling it when it quite disappeared from under my finger, many beats being missed. I looked at him; he had become very pale in the face, twitching set it, and he at once went into a very severe epileptic convulsion." Moxon's house physician, Mr. Lane, corroborated the same fact twice on the same patient. Moxon noted a third example. "I was examining the heart of a young gentleman who was asking my advice on account of attacks of epilepsy. He was standing and I had my stethoscope over his heart and was attending to the quality of the sounds. These sounds stopped suddenly and so completely that in great surprise I moved to look at him and saw him with exceedingly pale face, evidently quite unconscious, his balance just lost and he falling forwards. He forthwith went into severe epileptiform convulsions. Dr. Hughlings Jackson has kindly informed me that he has observed on several occasions the pulse to disappear during the paleness of the face in the onset of attacks of *petit mal*." At the conclusion of his lecture Dr. Southey informed Moxon that in the only instance in which he had his finger on the pulse at the beginning of an epileptic convulsion he observed the pulse to disappear during the onset of the attack. Moxon further remarks that "I have found the pulse present again when the clonic spasms have just commenced." He attributed the cessation of the heart to the action of the pneumogastric nerve but recognised the fact that the cause of this pneumogastric impulse was yet to seek. Hilton Fagge[2] records a similar case. He was listening to the heart of an epileptic when it ceased to beat and the man fell back. Presently it recommenced to beat and then there was a little twitching of his hands.

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[1] Moxon: On the Influence of the Circulation on the Nervous System, THE LANCET, April 23rd, 1881, p. 648.

Other similar cases are on record. Hare in his recent work[3] has revived the old idea that epilepsy is due to cerebral anæmia and has propounded the following statement as representing the sequence of events in the genesis of a fit: "I shall assume provisionally that in epilepsy, as in most of the paroxysmal neuroses, there is a widespread area of vaso-constriction tending to cause a rise in the general blood pressure; that this vaso-constriction whether because it is sudden or because it is very extensive leaves no *time or room for adequate compensation by an area of vaso-dilation*; and that consequently cardiac inhibition through the vagus is demanded to check the continuous rise in the general blood pressure so induced. So is occasioned a grave modification of the heart beat of the nature of slowing and weakening, amounting, perhaps, quite often to actual cessation. In this way are produced a more or less sudden fall in the blood pressure and a more or less sudden anæmia of the brain; and this is the proximate factor of the unconsciousness and of the convulsions. Synchronous with the initial rise of blood pressure are the various premonitory symptoms or auræ of the fit; synchronous with the sudden fall in blood pressure is the commencement of the unconsciousness and of the tonic muscular spasm; synchronous with the recommencing or accelerating heart beats and the consequent progressive recovery of the blood pressure is the relaxation of the tonic spasm and its substitution by intermittent or clonic convulsions presenting progressively widening intervals. As the blood pressure continues to rise the clonic convulsions become less and less frequent and finally cease."

It is perfectly true that such cardiac arrest is not a constant phenomenon in epilepsy. It is well known that the pulse may be maintained in fair volume throughout the whole fit and Gowers[4] states: "The pulse may be feeble at the onset but I have never noted an actual initial failure. It is generally unaffected at the commencement. A *tracing* published by Voisin shows that the heart's action may be perfectly normal *during* the stage of aura." But it is very possible that cardiac arrest in the onset of an epileptic fit may be much commoner than is suspected. It is obviously a matter of some difficulty to make observations as it is usually impossible to predict when a fit is likely to occur.

The phenomenon merits greater consideration than it has received. It is clear that cardiac arrest may precede the development of the fit and it is also well known that stoppage of the heart for a sufficient period will give rise to attacks of unconsciousness and convulsions, the so-called Stokes-Adams syndrome. A most remarkable case has been published by Webster,[5] of a man, aged 48 years, whose heart would intermit for periods varying from 10 to 20 seconds. The features observed in one of these periods of intermission were that so soon as the pulse became suspended the face became rapidly and extremely pale; later, after some 15 seconds of absence of pulse spasmodic twitchings of the muscles of the face were observed; as the period lengthened still further the spasmodic movements extended to the muscles of the neck and ultimately the arms and legs took part in the convulsive movements. During the more severe crises either concomitant squint of both eyes or conjugate deviation to either side was observed and the pupils became widely dilated. Respiration was noisy, with considerable puffing out of the cheeks, and froth appeared at the mouth. During the greater part of the period the patient was quite unconscious. Flushing of the face and return of consciousness were always almost simultaneous with the appearance of the pulse at the radial artery, the pulse being felt slightly before the flushing of the face was observed. Webster's paper is accompanied by a series of 60 beautiful sphygmograms which establish beyond question that the arrest of the heart preceded the epileptiform attack. Another very instructive case has been published by J. M. Finny.[6]

The efficacy of cerebral anæmia as a means of producing unconsciousness and convulsions scarcely requires mention. The well-known experiments of Kussmaul and Tenner and the effects of a rapid and severe hæmorrhage in man may be just mentioned. No cause could be more potent than a sudden cessation of the beating of the heart for the production of an anæmia not only of the brain but of the medulla, cord, and entire body. It would account for the unconsciousness and it is beyond dispute that it can produce convulsions; it would act as the "physiological fulminate" of Hughlings Jackson.

Sudden cessation of the heart can certainly cause tonic spasm, as recorded in a case of sudden death due to vagus inhibition of the heart reported by me.[7] The clonic spasms are more difficult of explanation. According to Hare they may be due to the return of the blood to the brain and in this connexion a case reported by W. Broadbent[8] is worthy of note. The patient was a woman, aged 44 years, with double mitral disease, who for seven years had been subject to epileptic fits. One evening "she was sitting talking to her daughter when she was suddenly unable to speak plainly and became rigid preparatory to a fit. Her daughter stated that instead of the usual fit there was irregular jerking of the right arm and leg and the mouth was drawn over to the right, but she says the head was turned to the left; the left arm and the left leg remained absolutely passive. She passed water during the fit." She was unconscious for five hours after the fit and was then found to have left hemiplegia and hemianæsthesia. Death occurred on the ninth day. Post mortem, in the right middle cerebral artery just beyond the point of origin a small embolus was found with a distal thrombus for half an inch. There was extreme softening both of the cortex and of the basal ganglia of the right side of the brain.

The case is recorded as one of cerebral embolism occurring just at the commencement of an epileptic fit; but whether that was so or whether the embolus initiated the attack is difficult of proof. Cerebral embolism is not infrequently associated with convulsions and occurring in an epileptic it would presumably be still more likely to precipitate a fit. If in this particular patient the fits were associated with cardiac arrest, the extremely interesting point arises that the embolus would prevent any return of blood to the right side of the brain. The case therefore affords support to the theory that the clonic convulsions are due to the returning blood flow.

The fact that a powerful mechanism for producing cardiac inhibition does exist in the vagus nerve and in its connexions would be sufficient to account for the cardiac arrest that occurs in certain cases of epilepsy. If such mechanism were unduly sensitive or if the ordinary causes which induce vagus inhibition of the heart (such as a rise in blood pressure) were either abnormal or excessive, then cardiac inhibition might occur with undue ease and frequency. It might be urged that stoppage of the heart is a serious event and that if it occurred frequently there would be some probability of its bringing about the death of the patient. But it is a fundamental physiological fact that under experimental stimulation of the vagus there is a practically irresistible tendency for the heart to recommence beating, even during the stimulation—the so-called vagus escape of the heart. This vagus escape of the heart would account for the recovery from the fits. It is not contended that vagus inhibition of the heart occurs as an initial factor in every epileptic fit. Any cause competent to produce a sudden or rapid cerebral anæmia might be equally efficient and in this connexion it may be remembered that vaso-constriction of the cerebral arteries has been advanced in the past as the cause of epilepsy. This hypothesis has been discredited but the recent demonstration of nerve fibres in the cerebral vessels and other evidence of vaso-motor activity in the brain give considerable food for thought.

The phenomena of Raynaud's disease find adequate explanation in extreme vaso-constriction occurring in the affected parts. The cerebral complications which occasionally occur are explicable on the grounds that a similar *constriction* occurs in the cerebral vessels. Thus Osler[9] records the case of a woman, aged 48 years, who was subject to the ordinary phenomena of Raynaud's disease but in addition she had three attacks of aphasia with partial right hemiplegia occurring with the attacks of Raynaud's disease and one of left-sided weakness. These were transient and in each case followed by perfect recovery. That the retinal artery may be narrowed with impairment of vision is also known to occur in Raynaud's disease. Such phenomena strongly favour the view that the cerebral arteries, like those in other situations, are subject to variations in their calibre. It is very interesting, moreover, to note that Raynaud's disease is apt to be associated with epileptic fits and, indeed, Monro[10] states that 5 per cent. of cases of Raynaud's disease have suffered from convulsions at some time or other and several very striking cases of the association are on record. Thomas and Osler[11] record the case of a man whose attacks of Raynaud's disease were associated with severe epileptic attacks. The sequence of events was as follows. Firstly, the fingers became cold, white and dead, and the nails blue, associated with considerable pain. Then followed general chilliness with cold feet. These premonitory symptoms lasted for five minutes and were succeeded by unconsciousness and convulsions lasting for half an hour. In this case there was, firstly, the arterial spasm leading to the local syncope of the fingers; and secondly, general chilliness probably to be attributed to a general cutaneous vaso-constriction. The resulting rise of blood pressure on Hare's hypothesis would be the factor determining the vagus inhibition of the heart. The convulsions might also be explained by a vaso constriction affecting the cerebral vessels, the occurrence of which in cases of Raynaud's disease has been suggested above. Other cases illustrating the association of epilepsy and Raynaud's disease are also on record. Harvey Cushing[12] notes that, "contrary to the positive statements of many, substances like epinephrin will blanch the pial vessels over the area of its application, as will occasionally a jet of cold water against the brain or the faradic current used for cortical stimulation."

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[2] Fagge and Pye-Smith: Text-book of Medicine, second edition, 1888, p. 793.

[3] The Food Factor in Disease, 1905, p. 331.

[4] Gowers: Epilepsy, second edition, 1901.

[5] Cardiac Arrhythmia in Relation to Cerebral Anæmia and Epileptiform Crises, Glasgow Hospital Reports, 1901.

[6] Bradycardia with Arrhythmia and Epileptiform Seizures, Brit. Med. Jour., April 28th, 1906, p. 967.

[7] *On Death Occurring during or after Exploratory Puncture of Lung*, St. Thomas's Hospital Reports, vol. xxviii., 1899.

[8] Cerebral Embolus during an Epileptic Fit, Brain, vol. xxvi., 1903, p. 447.

[9] *The Cerebral Complications of Raynaud's Disease*, American Journal of Medical Sciences, vol. cxii., 1896, p. 522.

This short paper has been written to point out that cardiac arrest does occur in some cases of epilepsy and to suggest that such arrest may be far commoner than is suspected. If observations were made on the pulse at the onset of fits by those whose work brings them into contact with epileptic patients in considerable numbers it would soon be established whether such cardiac arrest be of occasional or of frequent occurrence. Sudden cerebral anæmia due to cardiac inhibition (or to cerebral vaso-motor spasm) would account for most of the symptoms of an epileptic fit and it is suggested that the recovery from the fits finds adequate explanation in the well-known physiological fact—the vagus escape of the heart. Certain morbid changes have been described in the brains of epileptics but it is at least possible that they may be secondary to the repeated attacks of transient cerebral anæmia which must follow cardiac arrest and to the extreme congestion of the brain that the convulsive movements give rise to. Even if cardiac arrest can be proved to have no etiological influence in the mechanism of an attack it is worthy of study and is a symptom of great clinical importance, but it would be singular if a condition which in itself is competent to produce an epileptic fit were merely a side issue in the course of an attack.

Wimpole-street, W.

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[10] Raynaud's Disease, 1899, p. 151.

[11] A Case of Raynaud's Disease associated with Convulsions and Hæmoglobinuria, Johns Hopkins Hospital Reports 1891, p. 114

[12] Some Experimental and Clinical Observations concerning States of Increased Intracranial Tension, American Journal of Medical Sciences, 1902, p. 400.

St Bartholomew's Hospital and College.—The following scholarships, medals, and prizes have been awarded at St. Bartholomew's Medical School: The Lawrence scholarship and gold medal in medicine, surgery, and midwifery (value £45) to G. C. E Simpson. The Brackenbury scholarship in medicine (value £39) to P. L. Giuseppi and J. K Willis (equal). The Brackenbury scholarship in surgery (value £39) to R. H. Bott. The Matthews Duncan prize in midwifery to D W. Hume. The Burrows prize in pathology to P L. Giuseppi. The Skynner prize in morbid anatomy in reference to scarlet and rheumatic fevers to E. E. Cockayne The Willett medal for operative surgery to J. C. Mead The Wix prize for an essay on the Life and Works of Sir William Savory to K. Macfarlane Walker. The Shuter scholarship in anatomy and physiology (value £50) to H. T. H. Butt of Christ's College, Cambridge

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NOTES OF TWO CASES OF AMPUTATION OF THE SHOULDER-GIRDLE.[1]

By J. CRAWFORD RENTON, M.D. Edin.,
SURGEON AND LECTURER ON CLINICAL SURGERY AT THE WESTERN INFIRMARY, GLASGOW; EXAMINER IN SURGERY AND CLINICAL SURGERY IN THE UNIVERSITY OF ABERDEEN.

Case 1.—The patient, a man, aged 40 years, was sent to me by Dr. A. N. Montgomery and was admitted to the Western Infirmary in December, 1900, suffering from an ulcer over the right forearm. There was a history of syphilis and the patient stated that he had had a nodule on the arm for 14 years. A portion of the ulcer was removed and was found on examination by Dr. A. R. Ferguson to be an epithelioma. His arm was amputated in the middle of the upper arm. In April, 1903, the disease recurred in the stump. The rest of the arm was disarticulated at the shoulder-joint and the growth was then found to look like a spindle-celled sarcoma, which is a point of considerable interest and which will be referred to later. On Feb. 10th, 1906, the patient returned with a recurrence, the whole stump and axilla being occupied by a very large tumour. Removal of the tumour was recommended and on the 19th the clavicle was divided at its inner third, the subclavian artery and vein were tied, and the tumour along with the scapula and two-thirds of the clavicle and an additional growth on the side of the chest were removed. By adopting this method, recommended by Berger, there was practically almost no bleeding, a few intercostal branches being easily secured as they were divided. The patient suffered from very little shock and made an excellent recovery. Stereoscopic photographs showed the condition previously to, and after, operation, as also the appearance of the patient with an artificial arm applied.

Report by Dr. M. Logan Taylor.—On dissection of the stump, which was removed along with the scapula and the outer half of the clavicle, a large tumour mass is found occupying the original position of the head of the humerus and extending down the axillary border of the scapula to its inferior angle. In this tumour mass are involved practically all the muscles about the shoulder joint, the deltoid especially being inseparable from it. The cut ends of the axillary vessels and of the brachial plexus of nerves run right into the centre of the growth. Microscopical examination of this second recurrence shows it to be a carcinoma. At first sight it has not got just the typical appearance of a squamous-celled epithelioma, but closer examination of the tumour cells shows them to be undoubtedly epithelial cells of the squamous type. The stroma is very well developed; alveoli are numerous and are filled with epithelial cells which in many instances are undergoing mucoid degeneration.

The primary growth was reported by Dr. Ferguson as being a squamous epithelioma, the first recurrence by Dr. J H. Teacher (April, 1903) as being a spindle-celled sarcoma, though he was aware at the time of the primary growth being a cancer, and now this second recurrence turns out to be epithelioma. Unfortunately the sections of the previous growths have not been kept, so it is impossible to refer to them now. Dr Teacher thinks that the first recurrence may have been a cancer after all but closely simulating a sarcoma.

Case 2.—The patient, a woman, aged 60 years, was sent to me by Dr. M. T Mackenzie of Scolpaig and was admitted to the Western Infirmary on Feb. 23rd, 1906. Two years ago she had hysterectomy performed for uterine fibroid by Professor Murdoch Cameron. She now suffered from a large tumour involving the upper part of the right humerus which was broken. The circumference of the arm was 14½ inches, as compared with 12 inches on the opposite side. The tumour had extended so much into the axilla and had pushed up the supraclavicular space that anything short of a shoulder girdle amputation was impossible. This was carried out exactly as is above described. There was very little shock and the patient went home on March 19th.

Report by Dr. Taylor.—The growth in the humerus is a large one, measuring 6 × 3½ × 3 inches. It extends from the anatomical neck of the humerus to the middle of the shaft. It is now impossible to say whether it has been originally a central or a periosteal growth for the tumour has completely replaced the shaft in the part affected. The articular surface of the head of the bone is seen at the upper end of the tumour but it is comparatively loose and could be easily torn away from the growth. The distal half of the humerus after removal of all the muscles was found to be attached to the lower end of the growth quite loosely by some tumour tissue. The muscles about the shoulder were adherent to the growth but were involved to a slight degree only. Microscopical examination shows the growth to be a sarcoma of the mixed-cell type, the majority of the cells being small round ones; the others are short spindles.

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[1] A paper read before the Glasgow Pathological and Clinical Society.

Remarks.—The two cases above described were operated on within ten days of each other and they illustrate the great value of Berger's amputation. By carrying out his method the mortality is practically the same as amputation at the shoulder-joint, which is extremely small. There was no special difficulty with either operation except in the woman, where it was a little more troublesome to expose the subclavian artery and vein owing to her stoutness and the size of the tumour. I have great pleasure in strongly recommending the operation.

Glasgow.

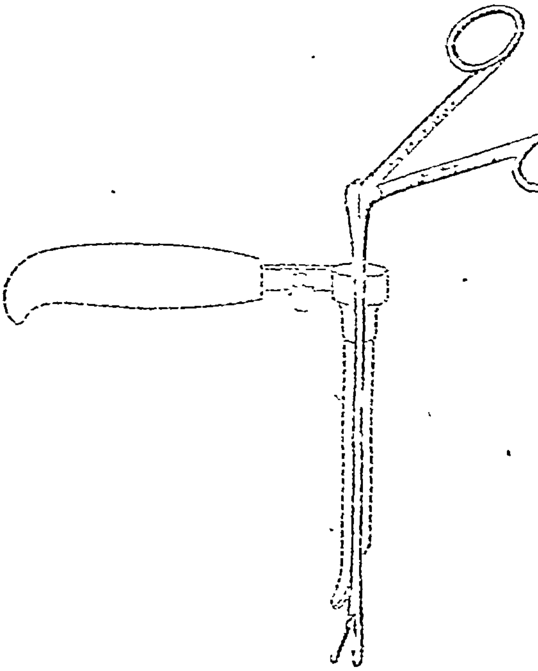
THE OPERATIVE TREATMENT OF LARYNGEAL PAPILLOMATA IN CHILDREN.

BY D. R. PATERSON, M.D. EDIN.,
SURGEON TO THE EAR, NOSE, AND THROAT DEPARTMENT, CARDIFF INFIRMARY.

THE frequency with which papers appear upon this subject is an indication of the difficulties which surround it and of the unsatisfactory nature of the results. Its importance, however, should not be under estimated as the frequent recurrence of these growths, even after what appears to be complete removal, is a constant menace to the life of the child. Of the three methods of treatment generally practised the operation of thyrotomy has been advocated on the ground that it permits of a more thorough clearance of the larynx. It exposes the parts completely and enables the operator to curette away all the affected tissue. Many objections have, however, been urged against it. Apart from the ordinary risks incidental to external cutting operations on the air passages, which are by no means insignificant, injury to the voice has resulted in not a few instances. Moreover, it does not guard against recurrence, however completely it may be done, and repetition of the operation may be necessary. Many cases are recorded of recurrence after thyrotomy and in one instance this operation was performed on a child as many as 17 times within two years.

Another mode of treatment—the performance of tracheotomy—is often a matter of urgency. Some authorities advise postponing any operation until the patient is older, unless, of course, obstruction of breathing supervenes. Insertion of a cannula in the trachea insures rest to the glottis for a prolonged period and has been followed by good results in many cases. It is necessary, however, to retain the tube for a considerable time, from 18 months to two years, and this cannot be regarded as a measure without some risk. I have on one occasion seen disappearance of the papillomata after a tube had been worn for that period but in others it had to be supplemented by the third or endolaryngeal method. This procedure, which is the one usually adopted by laryngologists, is an attempt to remove the growths by the natural passages. In order to control it, the use of the laryngoscope is necessary but the difficulties with this instrument in young children are so great that it is sometimes impossible even to get a satisfactory view of the larynx. For some years I used this method in the manner generally adopted, with the child under a general anæsthetic combined with local anæsthesia. The little patient, placed sitting in the nurse's lap, has chloroform administered in that position. Several assistants are required. A solution of cocaine brushed on the pharynx and larynx enables the instruments to be used without exciting reflex action, but great difficulty is experienced in keeping the part free from the copious secretion of mucus. I generally employed Mackenzie's spoon-blade forceps and for the smaller pieces Schroeter's instrument which could be moulded to fit into recesses. This procedure is of course very difficult to carry out in young children and in many cases it is impossible to thoroughly clear the larynx. Still, in a few cases excellent results were obtained, but the difficulty of clearing the anterior commissure and subglottic space is so great that recurrence is frequent and the operation has to be repeated. Some operators abandon the laryngoscope and are content to be guided solely by the sense of touch. Here the patient is placed on the back on a table under a general anæsthetic, but even with guarded instruments this procedure is not without risk of damaging the larynx. I have several times adopted it but have rarely succeeded in effecting a good clearance. Though these difficulties stand in the way of the general adoption of the endolaryngeal method there is no question that it should be tried in the first instance as it involves less risk to life and to the voice. This can be more strongly urged at the present time as the drawbacks I have enumerated are almost entirely got rid of by employing the direct method of examining the larynx. The ease with which the larynx can now be brought under inspection and the excellent view of the field of operation which may be obtained have much simplified endolaryngeal procedure and rendered it more effective. The advantages of this method are great and it is the purpose of this short paper to draw attention to them as illustrated by my own experience.

The introduction in 1895 by Kirstein of the autoscope marked a real advance in the direct examination of the larynx. His "universal spatula" I found very serviceable for inspection of the larynx though the amount of pressure that had to be exerted in order to depress the tongue made it in certain cases difficult to manipulate. To overcome this Killian employed a tube spatula and this improvement has greatly simplified the procedure and rendered it easier to carry out.



The instruments required for the removal of papillomata by the direct method are a fish-tail tube spatula with handle attached and a straight forceps. The best form of illumination is the Kirstein electric head lamp which has very good illuminating power. The operating table should be of sufficient height to enable the operator when seated on a low chair to work conveniently. If the table be too low he has to assume a cramped uncomfortable position in which the light is uncertain and the instruments are difficult to manage with ease and precision. The patient should be placed on the back with the head hanging over the end of the table and a low pillow under the shoulders Chloroform is the most suitable anæsthetic to administer and full anæsthesia can be easily kept up from a Juncker's inhaler with the mouth-tube hooked round the angle of the mouth. The pharynx is brushed lightly with a 10 per cent. solution of cocaine, the tube spatula is introduced, and through it the entrance of the larynx and the under surface of the epiglottis are similarly brushed. A few drops of adrenalin may be added to the cocaine solution as it prolongs the anæsthesia and prevents hæmorrhage during the operation. The difficulty with the mucous secretion is comparatively slight in this position as it drains into the most dependent part of the pharynx. Very little chloroform is required to maintain the general anæsthesia, a matter of some comfort to the operator as the expired chloroform coming out in a jet through the tube spatula impinges on his eye, causing smarting and interfering with the proper view of the parts. In the introduction of the spatula its point is passed along the under surface of the epiglottis and then tilted upwards so that it carries that structure forwards and enables an admirable view of the larynx to be obtained. In the majority of cases even this is not necessary. Placing the fish-tail end of the spatula on the base of the tongue immediately in front of the epiglottis and exerting pressure forwards is quite sufficient to bring the interior of the larynx into full view, and the whole of the operation can be carried out with the spatula in that position. For the removal of the papillomata I have employed various forms of forceps and after several trials I have had constructed by Messrs. Mayer and Meltzer one that I find very serviceable (*vide* illustration). It is a forceps with a straight shank fashioned on the crocodile principle and terminating in a beak with cutting edges. From the bend on the shank to the tip the length is nearly eight inches. It is used through the tube spatula and is lightly built so as to interfere with the view as little as possible. At the same time it is capable of dealing with fairly tough tissue. Various forms of beaks have been constructed to fit into the different parts of the larynx.

In operating the forceps is introduced through the spatula and the pieces are grasped and removed. If it is done rapidly the larynx can be fairly cleared before hæmorrhage shows itself to any extent. This is never very prominent and the head being dependent it runs into the pharynx where it can be mopped up. The two parts of the larynx which are most difficult to get at are the anterior commissure and the subglottic space. It is here that recurrence is most apt to take place, as the removal is generally imperfect. In one case the recurrence was eventually limited to the region of the anterior commissure. The beak of the straight forceps can be inserted into this space and a more complete clearance effected. It is more difficult to deal with the subglottic area, as the surface is more flat and the projecting masses are not so easy to grasp. The narrow-beaked forceps have been found very serviceable here and their use may be supplemented by a curette. For this purpose I have employed a modification of Löri's curette. This instrument has a receptacle to catch the detached pieces of growth and prevent their being aspirated into the air passages and has terminals of different calibre to suit various sizes of larynx. I have had the instrument adapted to the direct method by using a shank similar to that of the forceps. As it cuts from below upwards it is passed beyond the part to be removed and, pressed firmly against the tissue, it is drawn with a firm stroke upwards. As the cutting edge can be adapted to any part of the interior of the larynx any remaining papillomata can be dealt with effectually. As the larynx of the child is capable of considerable lateral displacement it is of much help to have the organ steadied from outside by an assistant. Much greater pressure can then be exerted, notably where the papillomata are sessile and tough. The endolaryngeal operation carried out by the direct method has given such excellent results that I have no hesitation in urging its adoption in the first instance in all cases of laryngeal papillomata. Where recurrence takes place soon and is persistent I would advise in addition the wearing of a tracheotomy tube for a time. This has a distinctly good effect in retarding the growth and enables the operator to deal more thoroughly with the papillomata at each sitting.

Cardiff.

PAIGNTON (DEVON) COTTAGE HOSPITAL.—The committee of the Paignton Cottage Hospital has decided to erect a new operating theatre and to provide extra accommodation for the administrative block. The cost of the undertaking has been estimated at £1172 and the work is to be commenced shortly.

A CASE OF CONGENITAL ABNORMALITY OF THE GENITO-URINARY ORGANS.

BY G. F. DARWALL SMITH, M.B., B.CH. OXON., F.R.C.S. ENG.,
OBSTETRIC TUTOR AND REGISTRAR TO ST. GEORGE'S HOSPITAL;
AND
A. LIONEL H. SMITH, M.R.C.S. ENG., L.R.C.P. LOND.,
REGISTRAR TO THE GENERAL LYING-IN HOSPITAL.

THE following case seems sufficiently uncommon to deserve publication.

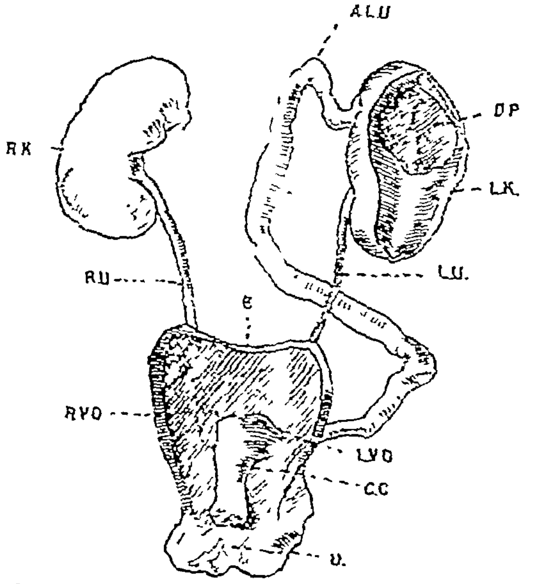
Clinical description.—The patient, a female infant, was first seen by one of us on Oct. 6th, 1905. She was then five days old. Her mother had been attended at her confinement by a very experienced and highly skilled midwife who is an inspector of midwives under the Central Midwives Board. This midwife reported that at birth the child presented no external abnormality and that the labour had been normal in every respect but that on the fourth day the condition immediately to be described was first seen. On the fifth day when seen by one of us this condition was as follows. A dark red globular swelling of the size of a walnut was protruding from the vulva. On its surface were a few darker hæmorrhagic patches and a little blood was oozing from it. The swelling was thoroughly bathed with boric acid lotion and was examined further under full antiseptic precautions. It was then found to be protruding from the urethra. The orifice of the vagina, which appeared quite normal, was posterior to it and behind this again there was slight prolapse of the rectal mucous membrane. The swelling felt cystic and rather thin-walled but was not particularly tense. It did not seem to be tender when handled gently and gave no impulse to the hand when the child cried. On the right side near its base one ureteric orifice could be seen from which a little urine spurted gently at intervals. The left side showed more congestion than the right but no ureteric orifice could be found here, although urine appeared to well up on this side also. The swelling was not at all tightly gripped by the urethral orifice. Several attempts were then made to compress and reduce the swelling back through the urethra with the fingers but as these were unsuccessful a blunt probe was used very gently to push it up by degrees, starting from its base. On one occasion while this was being done, in spite of great gentleness the probe felt as though it had pierced the wall of the swelling; there was, however, no gush of fluid from the puncture (if puncture there was) nor was there any appreciable decrease in size of the protrusion. However, after this the probe was laid aside and replacement was finally effected by passing the whole of the little finger up the urethra, through which the finger passed with extraordinary ease. The reduction did not seem to cause any pain. The child appeared perfectly well and there was no history that she had been ailing in any way. Neither abdominal nor rectal examination disclosed anything abnormal and no cause for straining could be discovered elsewhere.

The diagnosis seemed to lie between inversion of the whole bladder wall, inversion of the mucous membrane of the bladder, and prolapse of a "ureteric cyst," together with part of the bladder. Inversion of the whole bladder wall seemed improbable owing to the apparent thinness of the walls of the swelling and owing to the absence of any impulse on crying, while the absence of any discoverable ureteric orifice on the left side seemed to point to some possible connexion between the swelling and the left ureter. The swelling had not the funnel-shaped appearance which is described as being characteristic of prolapse of the ureter. As the child appeared perfectly well it seemed best to watch the case for the present. Accordingly a pad of aseptic wool was applied to the vulva, cleansing of the vulva with boric acid lotion at frequent intervals was ordered, and dilute boric acid ointment was applied to the skin in the neighbourhood.

It may be mentioned that the child had two elder brothers who were said to be normal in every respect and her parents similarly denied any abnormality of their persons. During the night of Oct. 6th the swelling again came down but was much smaller than before. It was also now rather darker in colour and quite flaccid. There was no sign of any sloughing or infection of its surface. It was replaced as before. During the next 24 hours it was replaced three times but each time that it came down it was smaller than when last seen. The child remained quite happy and well.

On the 8th the swelling only appeared once and was distinctly smaller. It did not appear again until the 10th, when it was only of about the size of a large pea. On the 13th it appeared and was replaced for the last time, and on this occasion it was noticed that the vesical sphincter was distinctly tighter than it had been hitherto. The child throughout seemed very well and contented and between the 8th and 14th had gained six and a half ounces in weight, in spite of a change from the breast to bottle feeding. On the 15th she suddenly had a convulsion during which she died. The cause of the convulsion was not obvious.

Pathological description.—A necropsy was performed about 12 hours after death. Rigor mortis was fairly well marked. Post-mortem hypostatic congestion was present over the most dependent parts. The buttocks were not sore. The hands were tightly clenched and the lips were almost black. The general appearance of the cadaver was strongly suggestive of death from asphyxia. The body was rather small but well nourished and the amount of subcutaneous fat was normal. An incision was made in the middle line from the chin to a little above the umbilicus. Thence it was carried slightly on the left to the pubes so as to avoid injury to the urachus.



Semi-diagrammatic representation of the parts in a case of congenital abnormality of the genito-urinary organs. B., Bladder. U., Urethra. R.K., Right kidney. R.U., Right ureter. R.V.O., Vesical orifice of right ureter. A.L.U., Accessory left ureter. D.P., Dilated pelvis to left accessory ureter. L.K., Left kidney. L.U., Left ureter. L.V.O., Vesical orifice of left ureter. C.C., Collapsed ureteric cyst.

The thorax: There was no fluid in either pleural cavity. Scattered over the surface of each lung were a few small subpleural hæmorrhages, varying in size from that of a pin's head to that of a millet seed. On section the lungs were found to be normal, except that they were rather engorged. There was no excess of fluid in the pericardium. Scattered over the surface of the heart were a few subpericardial hæmorrhages similar to those found on the lungs. In other respects the heart was normal. The thymus seemed rather smaller than usual. The larynx, trachea, and bronchi were normal.

The abdomen: There was no fluid in the peritoneal cavity. The liver was normal. The spleen was rather smaller than usual but was otherwise normal. The pelvic colon entered the pelvis on the right side, its usual situation being occupied by a coiled tube similar in size and appearance to the rectum but obviously having no connexion with the intestine. The ovaries and Fallopian tubes were lying on the dorsal abdominal wall, reaching as high up as, and intimately attached to, the inferior end of either kidney. On the left side of the abdomen beneath the peritoneum was a tortuous tube very similar in size and appearance to the colon, for which it was at first sight mistaken. This, however, on further dissection was found to be a very much dilated accessory ureter. The whole length of the intestine from the stomach to the end of the rectum was removed. It was found to be normal. The pelvis was split through the symphysis and the two halves were widely separated. The vagina, rectum, bladder, uterus, Fallopian tubes, ovaries, ureters, and kidneys were removed *en masse*. The brain also was examined but nothing abnormal was found.

Detailed description of the genito-urinary organs.—The right kidney was normal in size and appearance; on section it presented no abnormality. The right ureter was normal and measured two and a half inches in length. The ovaries and Fallopian tubes, which were lying on the dorsal abdominal wall, were attached to the perinephritic tissue at the lower end of the kidneys. The left kidney was slightly larger than the right. Scattered over its surface at the upper end were a few small, tense cysts. Two ureters arose from the hilum (see figure), the lower one being normal, the upper and larger one arising from a largely dilated pelvis, distinct from the pelvis belonging to the lower ureter. On section the upper end of the left kidney was found to be completely occupied by the dilated end of the accessory ureter with the exception of the thinned-out cortex, which measured no more than one-eighth of an inch in thickness. The wall of this dilatation was quite smooth and showed no trace of pyramids nor of the openings of the ducts of Bellini to the naked eye. The accessory ureter and its dilated upper end were filled with a pale yellowish and slightly opalescent fluid. The smaller and lower left ureter opened into the lower end of the kidney in a normal manner. The pelvis was small and had about a dozen pyramids projecting into it. The smaller left ureter measured three inches in length and was therefore slightly longer than its fellow of the opposite side. Its diameter was approximately the same as that of the right ureter. The accessory and upper left ureter, which was extremely tortuous, measured six and a quarter inches in length and seven-twelfths of an inch in diameter when flattened out. Where it passed through the bladder wall it was much constricted. It entered the bladder below the opening of the smaller left ureter which opened at the upper limit of the wall of what was apparently a collapsed cyst formed by the lower end of the accessory ureter. The bladder was slightly larger than normal and at the fundus presented no obvious abnormality except that the mucous membrane had a few hæmorrhagic spots upon its surface. Projecting from the left side of the region of the trigone was a pink, thin-walled, pear-shaped, and collapsed cyst, the apex of which passed out through the urethra and probably terminated originally at the vulva in the cystic swelling described above. A fine probe could be passed with difficulty from the interior of the cyst through the constricted part of the ureter which lay in the bladder wall into the dilated accessory ureter above. The smaller left ureter opened at the upper limit of the cyst wall close to its origin from the bladder wall and very near to that margin which was nearest to the middle line of the body. The opening of the right ureter was situated on the posterior bladder wall on a level with the upper border of the cyst and slightly to the right of it. The urethra was dilated but was otherwise normal. The uterus was normal. The ovaries and Fallopian tubes were normal except as regards their position and attachments on the posterior abdominal wall. The vagina and the labia minora and majora were all normal. Microscopic examination of part of the cyst wall showed normal transitional epithelium on its vesical surface and very much thinned and flattened epithelium of the same character on its ureteric surface. Between these two layers of epithelium was some very vascular connective tissue which did not appear to contain any muscle fibres.

Remarks.—In the light of the necropsy it seems probable that this was a case of a dilated accessory ureter either with a blind cystic ending in the bladder wall or with ballooning of its lower end due to congenital narrowing of its orifice. Which of the two it really was it does not seem possible to say now. The treatment pursued in this particular case was dictated by the marked and progressive decrease in size of the protruded swelling and by the total absence of any morbid signs or symptoms exhibited by the child with the exception of the protrusion. Had the condition of the accessory left ureter been ascertained before death, doubtless it would have been better to have made a free communication between the bladder and the cyst, but even as it was the cyst apparently collapsed and the ureter did not, so that probably that treatment would have failed also. It is noteworthy that the thin-walled, pearl-grey appearance of the swelling, which is said to be present often in the case of these so called ureteric cysts, was entirely absent in this case.

MICROSCOPICAL AND CHEMICAL OBSERVATIONS ON A CASE OF SCLEREMA NEONATORUM.[1]

BY GEORGE CARPENTER, M.D. LOND., M.R.C.P. LOND.,
PHYSICIAN TO THE NORTH-EASTERN HOSPITAL FOR CHILDREN AND MEMBRE CORRESPONDANT DE LA SOCIÉTÉ DE PÉDIATRIE DE PARIS;

AND

SHEFFIELD NEAVE, B.A. OXON., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE NORTH-EASTERN HOSPITAL FOR CHILDREN.

THIS disease is not often met with, and less often in England than on the continent. Its favourite localities appear to be in Italy and France. It has been confounded in text-books with œdema neonatorum but it is quite distinct and there is no difficulty in diagnosing between the two. There are nevertheless two disorders, differing at any rate in degree, which both go under this name. The first, by far the commoner in this country, attacks otherwise healthy children of normal term at birth and is practically confined to the skin and the subjacent structures, usually ending in recovery at about six months; while the second, which is more usually found on the continent, attacks weaklings often of premature birth, and is a severe malady with serious constitutional symptoms of the alimentary and respiratory systems as well as of the kidney and is very fatal.[2] The case about to be described is of the first-mentioned order.

The patient was admitted to hospital on Dec. 30th, 1905, being six weeks old, well nourished, with normal temperature, and in fact normal in every way except for the induration of the skin on the posterior aspect of the body. The skin so affected was of a pink, purplish appearance and of a less even outline than usual, having some well marked dimples and rounded but slight eminences. On applying pressure with the finger and then removing it no pitting occurred, but the colour faded to white and slowly returned as the effect of the finger pressure passed off. When the skin was pinched up between the finger and thumb the underlying tissue being closely adherent appeared when doubled together to keep the fingers more than one inch apart and gave a sensation as if a layer of indiarubber were adherent to the under surface of the skin. This kind of induration extended all over the back and buttocks, the back of the neck and lower part of the back of the scalp, the back of the arms and deltoid regions, and the back of the thighs. In the last-mentioned region it tapered to a point just above the back of the knee in a very characteristic way. The edges of the indurated areas terminated by gradually thinning. Later these signs extended slowly and to a less degree to the angles of the jaws, the sides of the neck, down the arms nearly to the wrist, and there were islets formed all over the abdomen and chest. Pain was never an accompaniment of these indurations. During the five months the child has been under observation, although the above extensions took place, these signs have cleared up irregularly but continuously. At the time of writing a small triangular patch of induration exists between the shoulders with the apex downwards on the spine, but it is not nearly so thick or hard as in the first place. There are a small patch on the right buttock and an islet on the right cheek just below the superior maxilla. The glands are somewhat enlarged and shotty in the posterior triangle of the neck and in the groin and the spleen reaches one finger's breadth below the ribs. Throughout there was nothing distinctive taking place in respect of the temperature. A blood count was made but gave nothing very definite—viz., polymorphs, 34; lymphocytes, 57·5; large mononuclears, 0·6; myelocytes, 0·5; and eosinophiles, 2; total, 100; erythrocytes, 4,212,000; and leucocytes, 22,500. The child has during her stay in the hospital thrived very satisfactorily and the skin has cleared up as described under massage, together with, first, thyroid and then thymus extract given internally. The thyroid was first given for a month when some improvement was made. Thymus was then given, beginning with a small dose and being raised to 30 grains per diem, though subsequently reduced to half that amount. During this last treatment progress appeared to be much hastened.

A small piece of skin and subcutaneous tissue down to the muscle was excised by Mr. J. P. Lockhart Mummery from the back of the thigh for microscopical examination. Macroscopically, the fat and superficial fascia appeared to be perhaps thicker than usual but only slightly. The fat, however, was certainly whiter and in larger globules than usual and was much harder to the touch. Nothing further abnormal was, however, detected under the microscope, a control examination being made at the same time of a similar specimen of healthy skin from another child of the same age. The serous infiltration and increase of connective tissue mentioned in some cases were certainly absent and in this way this case agrees with that of Northrup mentioned by Holt.

The fat was submitted to Professor J. Addyman Gardner, M.A., F.I.C., for examination. He reported as follows:—

> I am afraid my investigations do not throw much light on the case. There were two difficulties which it was impossible to get over: (1) the small quantity of the sample, and (2) the fact that it was probably somewhat altered by the prolonged soaking in the formalin fluid. The dry specimen contained only 68 per cent. of fat, the rest being ordinary tissue matter, as far as could be determined in the dried residue after extraction, and this appears to agree with your microscopical report. The saponification equivalent was 205. The specimen also contained unsaturated fat—e.g., olein—but it was too small to permit of a quantitative estimation. The values usually given for the saponification equivalents of the various pure fats are: tripalmitin 209, tristearin 189, triolein 19 , horse fat 190·4. One might conclude from this that the specimen was particularly rich in palmitin. In the hope of throwing some light on the matter I examined the saponification equivalents of specimens of human fat cut from various parts of the body but they showed very considerable variation.
>
> I thought at first that the specimen of fat and the acids from it seemed more solid than is usual in human fat, but my examination of the specimen mentioned scarcely bears this out.
>
> On the whole, I am inclined to doubt whether the fat in the sample was in any way abnormal and think that the cause of the trouble must be sought in the associated matter.

It is thus obvious that the pathology of the disease is very obscure and it is hoped to call attention to the malady by the publication of this case, so that the work done here, although so negative, may be of some use to others as a starting-point for further investigation when new cases are obtainable.

A CASE OF ACTINOMYCOSIS.

PRIMARY ABSCESS OF THE LEFT LUNG EXHIBITING SPONTANEOUS CURE; METASTATIC MANIFESTATION IN THE PELVIS DECLARING ITSELF AFTER A YEAR'S LATENCY WITH ABSCESS FORMATION AND SLOW SPONTANEOUS CURE.

BY EDGAR TREVITHICK, M.D. CANTAB.

THIS illness occurred in a boy, aged 16 years, and has afforded a good example of a prolonged encounter between a living parasitic fungus on the one hand and human tissues on the other. If, as in this case, there now seems good reason to hope the tissues have ultimately succeeded in permanently stamping out the invasion they alone must be credited with the honours of the victory, for I have not been able to satisfy myself that any of the numerous artificial remedies that have been used have rendered any real assistance towards the patient's recovery.

There have been many points of interest observable in the course of this case of actinomycosis. It has illustrated in a marked degree the beneficent capabilities of rapid deposition of solid inflammatory exudation and has demonstrated with what great rapidity such exudation can be re-absorbed when its presence is no longer of service. It exemplifies the fact that a parasite may exist somewhere in the body for many months without showing any obvious signs of its whereabouts and that it may, after long periods of latency, declare its presence by stimulating violent and extensive tissue resentment.

One is tempted to suspect that during the long interval that elapsed in this case between the obsolescence of the original pulmonary lesion and the subsequent breaking-out of the secondary manifestation in the pelvis, obscure internal evolutions of some sort may have been taking place without giving rise to any gross manifestations. The condition of the patient's blood rather favoured such a view. For at the very outset of the second attack there was already marked leucocytosis and in addition great excess of extracellular bodies. And it is interesting to wonder along what path the parasite passed in its slow transit from one part of the body to another. The rapid fluctuations of body weight exhibited by the patient during the illness were very striking and the rapid spontaneous cure of the fæcal fistula that resulted in the course of the contest is also of interest.

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[1] The case was exhibited at the Society for the Study of Disease in Children on Jan. 19th, 1906, and the observations herein recorded were conducted subsequently.

[2] Dr. A. M. Gray, the resident medical officer, has searched the records of the North-Eastern Hospital for Children for the past ten years and could find no mention of a case similar to the one about to be reported during that period of time.

History of the pulmonary attack.—When first seen on Oct. 19th, 1903, the boy was very wasted, had marked hectic flush, and complained of shortness of breath. He had been employed in "carrying milk from the farm to the village" and had "caught cold," he thought, *three months previously*. Even since that time he had been getting thinner and losing strength and just recently he had suffered from troublesome dry cough, loss of appetite, and diarrhœa. There had been no expectoration but his friends "had noticed a very curious odour about his breath." On examination I found evidence of extensive consolidation in the lower lobe of the left lung and I, too, was struck by the curious odour of the breath. *On Oct. 26th the patient began to* cough up very large quantities of offensive pus, the odour of which resembled that previously remarked in the breath. With the onset of this copious expectoration the general condition began rapidly to improve. A few days later the physical signs indicated the existence of a cavity about the centre of the lower lobe of the left lung, surrounded by a broad zone of consolidation. By Nov. 13th the cough and expectoration were very much less and the latter was no longer offensive. The boy went to a convalescent home on Nov. 30th, weighing stones 7 pounds, having gained 21 pounds in body weight in 27 days. And later he went back to his own home in the country as "cured" and was written down as having suffered from "abscess of left lung."

It must be confessed that at this stage of the illness no diagnosis of actinomycosis was made. The characteristic yellow bodies which were so plentiful in the discharges *from* the subsequent pelvic lesions were not noticed in the sputum. They were not, indeed, either thought of or sought for. But certain observations that were written down at the time, taken together with the study of the subsequent course of the case, make it, I think, certain that this pulmonary abscess was in reality caused by the same organism as later asserted itself in another part of the body.

A note written on Oct. 24th, 1903, describes the sputum as follows: "Very offensive, with singular odour. Shreddy, making films that stain badly and *seem* to contain fatty material. No tubercle bacilli, but swarming with very fine hair-like streptococci showing curious tendency to interlace into tangles." This was a clumsy description but a sketch I made at the time showing the organism, together with my recollection, makes me certain that the "very fine hair-like streptococcus" was in reality derived from actinomyces and makes it probable that the yellow characteristic bodies, although overlooked, may yet have been present. *It is* not improbable that ordinary clinical observation is easily capable of overlooking their presence in sputum; indeed, this case has led me to reflect about certain other cases of "pneumonia" that have from time to time presented puzzling features and yielded puzzling *sputa*. I suspect that even in hospital practice the term "pneumonia" as sometimes used is more convenient than scientific.

History of the secondary attack.—After about a year's "perfectly good health" the boy came back *complaining* of pain in his left flank and exhibiting a very hard craggy lump firmly attached to the brim of the pelvis. From Oct. 26th, 1904, to Sept. 28th, 1905, he was ill in bed and during this year he passed through many vicissitudes of illness, being more than once seemingly at death's door. The body weight in September, 1904, had been 8 stones 2 pounds and this gradually decreased until on April 3rd, 1905, it was 6 stones 4 pounds. At this latter date there was very extensive involvement of the lower part of the abdomen. The infested areas were obstinately and lavishly circumscribed by very extensive barriers of solid inflammatory exudation, which eventually reached as high as the level of the umbilicus. This abdominal contest was accompanied by irregular and sometimes very high pyrexia and led to the formation of two separate intra-peritoneal abscesses, one *of* which eventually communicated with the large intestine. There was considerable enlargement of the spleen and the patient's troubles were much aggravated by pressure on nerves and bedsores. About this time it seemed as if recovery was very unlikely. In the end, however, the tissues, as had been the case in the original pulmonary attack, were victorious. On Oct. 2nd, 1905, the body weight had risen to 8 stones 12 pounds. The fæcal fistula had healed spontaneously. The discharge from the two abdominal issues was very greatly reduced and the intra-abdominal buttresses of seemingly solid tissue had all but disappeared. Since Nov. 1st, 1905, the patient had been at work as a baker and in June, 1906, when I saw him, he reported himself and looked in excellent health.

On the subject of treatment I have nothing much to say. The initial manifestation in the lung subsided and healed spontaneously. During the long activity of the subsequent pelvic manifestations many lines of treatment were tried. I was induced to give a long trial to the x rays. I thought their application increased the vascularity of the tissue in the neighbourhood of the issues. Iodide of potassium seemed to me to have no effect.

Bacteriological considerations.—The yellowish bodies characteristic of actinomycosis were abundant for several months in the purulent discharge obtained from the intra-abdominal lesions. They were examined by several pathologists who all agreed as to their nature. When one of these bodies, after having been cleansed in sterile salt solution, was incubated in broth a very copious yellowish deposit always formed round it at the bottom of the tube in the course of a few days. And microscopically this deposit, in addition to containing masses of finely divided parts, was always rich in elongated hair-like filaments. Three different observers failed to obtain cultures from it on the surface of solid media. It was injected subcutaneously in rabbits but failed to produce actinomycosis.

I took a good deal of interest in examining the discharges from these lesions. There are observable among the pus cells irregularly shaped interlacements of very delicate filaments, containing in their interstices aggregations of minute bodies irregularly rectangular in shape. There were also present considerable numbers of the characteristic yellow bodies already mentioned as being visible to the naked eye. These latter seemed on examination to consist of a yellowish *amorphous* central core, an intermediate interlacement of filaments and a peripheral dressing of club-like bodies. It does not seem very difficult, I think, to imagine the filamentous interlacements blossoming out into full-blown characteristic bodies. This imagination was strengthened by observing sections of young colonies of aspergillus glaucus and noting the relationship between the *strongly* eosinophile and charmingly graceful fruit-heads and the basophile mycelium from which they spring.

Cheltenham.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF SCHÖNLEIN'S PURPURA.

BY EDWARD C. B. IBOTSON, M.B. LOND.

I WAS summoned in the evening of June 11th last *to* see a boy, aged two years, as something unusual had been noticed in the state of his penis. I found a tight and much swollen prepuce in the *condition of* phimosis. His mother attributed this to a fall. I also observed that there were some large purple spots on the left thigh. I punctured the œdematous prepuce, squeezed out some of the serum, and ordered lead lotion to be applied frequently. His temperature was normal. On the next day (June 12th) there was still some phimosis, so the lead lotion was continued. The boy's temperature was now 100° F. and there was a copious purpuric eruption on the legs and arms. The parents were naturally alarmed, fearing some malignant infectious fever. I was, however, able to reassure them, pointing out that there were no *signs of variola*, measles, or scarlet fever. I also said that in my opinion the disease was either purpura or scurvy and I ordered lime-juice well sweetened to be freely given. *On* the following day there was some urticaria and in the centre of some of the wheals there was purpura. The purpura was strictly confined to the extremities—namely, the legs, the thighs, the buttocks, the arms, and the forearms. Some of the patches measured one or two inches in diameter. On the 14th there were painful swelling of the *left knee-joint and tenderness* of all the bones; a purpuric eruption had also commenced on the face. The boy's temperature on the 13th and 14th was normal. I prescribed a mixture containing 24 minims of suprarenalin (Armour), 20 minims of liquor rosæ dulcis, and water to make up one and a half ounces; *one drachm to be taken every four hours.* I also ordered the knee to be wrapped in cotton-wool and bandaged. Those purpuric patches which had faded left a brown stain behind. On the 15th the swelling of the knee was better and the œdema of the prepuce was gone. There was no further eruption on the extremities but some fresh spots had come out on the face. The child was sitting up and appeared to be much better; his bones were also less tender. On the 16th all swelling in the knee was gone; the patient continued to take the suprarenalin. On the 20th nearly all the purpuroid patches on the face were gone, leaving brown stains, and the boy was much better.

The case illustrates the following points: (1) combination of wheals and purpura, a combination which is diagnostic if not pathognomonic; (2) moderate pyrexia at the commencement of the illness; (3) swelling of the knee and prepuce; and (4) rapid beneficial action of suprarenalin.

Dover.

A CASE OF CEREBRO-SPINAL MENINGITIS.

By *John M. Bennion*, M.B., B.C. Cantab.

IN THE LANCET of June 30th, p. 1815, I read with great interest an article by Dr. William Wright and Dr. William Archibald on Epidemic Cerebro-spinal Meningitis and it has induced me to send you the notes of the following case.

The patient, who was a girl, aged six years, was taken ill on June 23rd last with severe headache and the "cold shivers." On the 24th she vomited several times, the mother stating *that the child could keep nothing down.* On the 25th, when I saw her for the first time, she was unconscious and delirious, the pupils were large, there was a patch of herpes on the lower lip, and the head was retracted. The temperature was 101·2° F. and the pulse-rate was 80. The knee-jerks on both sides were exaggerated and Kernig's sign was present. Nothing abnormal was observed in the chest. *The girl was* much worse on the morning of the 26th, the temperature being 102·6° and the pulse-rate 120; the respirations were 48 per minute and were noisy owing to mucus in the throat. A squint was noted. The retraction of the head was more marked. There were constant convulsions which involved the face and all four limbs. It was obvious that the child could not live long and she died early on the morning of the 27th. No lumbar puncture was performed and unfortunately a post-mortem examination was not allowed.

At first sight I thought that the case was one of tuberculous meningitis but the sudden onset, the labial herpes, and the abrupt termination, I think, justify the diagnosis of cerebro spinal meningitis. Up to the present no other member of the family has been attacked.

St. Mary Cray, Kent.

A CASE OF ABSENCE OF THE UTERUS.

By Alice Maud Soradji, M.B., B.S. Lond.

THE patient, who was a Hindoo, aged 19 years, came to me complaining of never having menstruated. She was well-built and well-developed, in fact rather broader and stronger than *other* girls of her class and age. In appearance there was nothing abnormal about her face or body. She had no hair about the face except *the faintest trace on* her upper lip. The breasts were well developed. The labia majora were very small and tightly stretched from the anterior to the posterior end; there were no folds representing the labia minora; the clitoris was hypertrophied. On making a vaginal examination the vagina was found to be quite small, only one and a half inches deep at most. No uterus was found. In the posterior wall of the vagina the mucous membrane was at one spot slightly puckered round a central point. She was married. She *complained* of a "*fulness*" in the head and the lower part of the abdomen which recurred every four weeks.

Bahawalpur, Punjab, India.

A Mirror

OF

HOSPITAL PRACTICE

BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.

A CASE OF APPENDIX ABSCESS WITH AN UNUSUAL COMPLICATION.

(Under the care of Mr. RUSSELL J. HOWARD.)

THE patient, a female, aged 17 years, was admitted to the Royal Waterloo Hospital on Feb. 7th, 1906, complaining of abdominal pain and vomiting. She gave the following history. Whilst dressing on the afternoon of Jan. 24th she was suddenly seized with pain in the right lower abdomen and vomited. She went to bed and was kept on milk and beef-tea but had no medical attendance. Four days after the onset, the symptoms being relieved, she was sent to her own home. There she was confined to bed for most of the day but got up in the afternoon and went to see her medical adviser who prescribed treatment. As the vomiting continued, on Feb. 7th she went to the hospital by omnibus and tram from Wimbledon. During her illness she had taken nothing but milk and beef-tea as she had vomited every day. During the first week the bowels had not been opened but after taking medicine the patient had had diarrhœa.

On admission she complained of pain in the right iliac fossa and a lump which her mother had discovered, nausea, and diarrhœa. She showed the abdominal facies; her tongue was coated and dry. The temperature was 100° F., the pulse was 116, and the respirations were 34. On abdominal examination there was an obvious swelling in the appendix area both to sight and touch. This swelling was *resonant on percussion* and was situated rather higher and more internally than the usual appendix abscess. Abdominal respiration was slight and there was marked muscular rigidity of the abdominal walls. Rectal examination made under an anæsthetic revealed nothing abnormal in the pelvis. The diagnosis made was retrocæcal appendix abscess.

Operation was *performed six hours after* admission. An incision was made over the most prominent part of the swelling and on opening the peritoneal cavity the cæcum came into view and there was an entire absence of adhesions in front. The general peritoneal cavity was shut off with gauze and a slight search revealed an abscess situated in the angle between the ileum and the cæcum, which contained about two ounces of foul-smelling pus. The cavity passed in an upward direction behind the ileum and the cæcum. The appendix *was not seen and no concretion was* found. The abscess cavity and the pouch of Douglas were drained with indiarubber tubes and the wound was partially united with sutures. After the operation the pulse was 115, the temperature was 101°, and the respirations were 35.

Progress.—On Feb. 8th the pulse was 112, the respirations were 37, and the temperature was 98°. Pus was passing out of the *abscess cavity* but none from Douglas's pouch. There was some abdominal pain but no distension. Incontinence of urine *and fæces was present.* On the 9th the pulse was 130, the respirations were 45, and the temperature was 99°. There was no general abdominal pain or distension but some vomiting was present. Offensive pus came from both tubes. On the 10th there were some abdominal distension and slight vomiting. The general condition had improved. The pulse was 120, the respirations were 25, and the temperature was 99·6°. On the 12th there were still abdominal distension and slight vomiting but food was taken well. The tongue was moist. The pulse was 130, the respirations were 35, and the temperature was 99°. A turpentine enema was administered which gave relief. At 10 P.M. on the 12th there was considerable hæmorrhage from the wound which soaked the dressing and filled both tubes with blood clot. When the wound was examined the bleeding had stopped; the tubes were removed, a gauze drain was substituted, and a light dressing was applied, the wound being disturbed as little as possible. The pulse was 158. No further hæmorrhage occurred from the wound but the patient died suddenly at 2 A.M. on the 13th.

Necropsy.—On opening the abdomen the small intestine was distended and pus was found spreading from the abscess region over the parietal peritoneum but there was no pus or lymph between the coils of the intestine. The large bowel was contracted and there was a large quantity of blood and pus in Douglas's pouch. The appendix was found lying behind the cæcum and running upwards and slightly inwards (Fig. 1); it was about four inches long and the last inch was completely gangrenous; there was no concretion. The abscess cavity was behind, and somewhat internal to, the cæcum and behind the last part of the ileum. The walls of the cavity were formed by the following structures—cæcum, ileum, duodenum (second part), psoas muscle, iliac vein, vena cava, and the iliac fascia in the right iliac fossa (Fig. 2). In the cavity were pus and blood clot. In the duodenum just where it turns up and in to run across the right crus of the diaphragm was a perforation with sloughing edges of about the size of a pea. The ulceration on the mucous surface was smaller than that on the peritoneal. On opening the duodenum and ileum they were found to contain a large quantity of blood. The iliac veins and the vena cava were normal. The rest of the organs were normal.

FIG. 1.

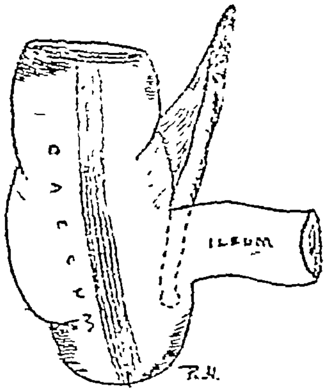

Diagram showing position of appendix.

FIG. 2.

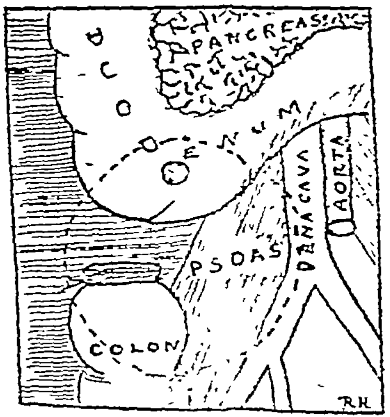

Diagram showing position of abscess cavity within dotted circle and perforation of duodenum.

Remarks by Mr. RUSSELL HOWARD.—The interest of this case lies in the two complications—hæmorrhage and perforation of the duodenum.

Hæmorrhage is a fairly well known complication and appears to be usually from erosion of the iliac vessels or the deep circumflex iliac artery. J. C. Lewis[1] records a case of hæmorrhage from the common iliac vein. G. Soudille[2] relates a fatal case with hæmorrhage from the external iliac artery. J. D. Malcolm[3] at the Clinical Society of London reported a case with severe hæmorrhage which recovered, the source of the bleeding not being ascertained, and in the discussion that followed other cases were mentioned, Charters Symonds reporting a case in which he found the external iliac artery and vein opened. Box and Wallace[4] report a fatal case of bleeding but the source of the hæmorrhage was not discovered; two severe hæmorrhages occurred per rectum. Ramsay[5] records a case of sloughing of the external iliac artery in which the vessel was ligatured and recovery took place. Dyce Duckworth reports a case in which the hæmorrhage occurred on the eighth day, with recovery. Moynihan, quoting Murphy and Mayo, states that the bleeding occurs from small vessels on the inner side of the appendix.

Perforation of the stomach and duodenum are also well-known complications and the following cases have been reported. Dieulafoy[6] records a fatal case of hæmatemesis following removal of the appendix in which acute necrosis of the mucous membrane of the stomach was found. Warren Low[7] reports a case of perforation of an ulcer of the stomach with appendicitis. Ledlard and Sedgwick[8] report a case of perforation of an ulcer on the pancreatic surface of the second part of the duodenum; there was no acute inflammation of the appendix and the abdomen was not drained. In the same paper they also quote a case of gastric ulcer under the care of F. Victor Milward. Watson Cheyne and H. Wilbe[9] report a case of perforated gastric ulcer with appendicitis. Bolton Carter[10] gives particulars of a case of an appendix abscess which was opened and drained with an indiarubber tube in which there was hæmorrhage from the wound and death occurred. Post mortem the appendix was gangrenous and lying deeply over the pelvic brim. The ulcer which had perforated was on the anterior surface of the second part of the duodenum. The direction in which the abscess had tracked and the direction in which the tube was inserted are not given.

The case described differs from all those quoted above in that the perforation in the duodenum was in the wall of the abscess and that the perforation was certainly *into* the duodenum. Whether the perforation was caused by the tube used for drainage resting against the duodenum is doubtful, as it was removed and gauze was substituted when the hæmorrhage occurred, but from the direction in which the tube ran it most likely did rest against the second part of the duodenum and was the cause of the fatal result. The case described by Bolton Carter may have been of this nature but in his case the appendix was hanging over the brim of the pelvis and the abscess wall probably did not include the duodenum.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.

A CASE OF SUCCESSFUL EXCISION OF A PORTION OF THE RIGHT LUNG FOR PULMONARY TUBERCULOSIS.

(Under the care of Mr. J. LIONEL STRETTON.)

THE patient, a female, aged 28 years, was admitted to the infirmary on July 19th, 1900. There were signs of tuberculous disease at the apex of the right lung, for which she was treated with increasing doses of creasote with temporary benefit. After her discharge the symptoms—cough, expectoration, and night sweats—increased in severity and she suggested the possibility of removing the diseased portion of lung. A full explanation of the danger was given to her and to her husband and they both desired the operation to be undertaken. She was readmitted on August 2nd, 1900, when the following note was made. "The patient gives a history of being treated four years ago for a delicate chest. For the past year and a half she has had a continuous cough with expectoration and night sweats; she has also been losing flesh. There is dulness over the right apex as far down as the lower border of the third rib. Tubular breathing and crepitant râles. The evening temperature is slightly raised and she has night sweats. The urine contains a trace of albumin."

On August 7th the patient was placed under ether. A vertical incision was made, about three inches long, with its centre over the third rib, two inches from, and parallel to, the breast bone. The third rib was separated from its cartilage and about four inches of it removed. On opening the pleura the lung was found closely adherent. The hand was introduced and the adhesions were with great difficulty separated down to the lower level of the third rib. There was profuse hæmorrhage, which was arrested by sponge pressure. The portion of lung separated was then surrounded with a serre-nœud and cut away, leaving a stump of about the size of a five-shilling piece.

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[1] Medical Record, New York, 1894, p. 652.
[2] Bulletin de la Société d'Anatomie de Paris, 1894.
[3] THE LANCET, March 2nd, 1901, p. 600.
[4] THE LANCET, June 6th, 1903, p. 1600.
[5] THE LANCET, June 6th, 1903, p. 1590.
[6] Quoted by Battle and Corner, Diseases of the Appendix, p. 173.
[7] THE LANCET, June 25th, 1904, p. 1783.
[8] THE LANCET, Sept. 10th, 1904, p. 761.
[9] THE LANCET, June 11th, 1904, p. 1641.
[10] THE LANCET, Nov. 2nd, 1901, p. 1194.

For the first 24 hours after the operation the patient remained in a very collapsed condition and suffered from pain and cough. At the end of 48 hours an attempt was made to remove the serre-nœud, but as rather free hæmorrhage occurred the wire was twisted and left on. For the next few days there were considerable difficulty in breathing, constant cough, and hæmorrhagic expectoration. There was also a good deal of hæmorrhage from the wound. Blood was found to collect in the pleura and had to be removed with a syringe. The breathing and cough gradually improved and the hæmorrhage ceased after the seventh day. In spite of great care with the dressings symptoms of sepsis supervened and on the 22nd it was deemed advisable to make a counter opening in the back and thread a large drainage-tube through. From that date improvement was continuous though slow. The wire came away on the 25th. The tube was removed on Nov. 7th and the wound was healed by the 14th. Her cough and expectoration entirely ceased by Nov. 23rd.

A specimen of the sputum was sent to the Worcestershire county council laboratory for examination at the end of October and the report stated that no bacilli could be found. The portion of lung removed consisted of about half of the right upper lobe and contained a cavity. Unfortunately it was destroyed before a thorough examination had been made.

Remarks by MR. STRETTON.—As I was unable to find any account of a similar operation it was necessary to devise the method of performing it. The chief difficulty I foresaw was the question of adhesions and this proved to be correct. The removal of one rib gave ample room for all the manipulations. It was found impossible to fix the stump in the wound because this caused dragging on the root of the lung accompanied by alarming symptoms of collapse. In future this difficulty could be overcome by removing several ribs and so allowing the chest wall to be brought down to the stump.

I had a letter from the patient in June of this year. She is still travelling about as a hawker but as she has not been in this town since I am unable to state what condition her lung is in.

The removal of a portion of lung for the cure of pulmonary tuberculosis is no doubt heroic and it is probable that it will be some time before patients will submit to the risk involved. With increased experience I have no doubt that the danger can be considerably lessened. The operation is not one of extreme difficulty and if cases were secured at an early stage the percentage of recoveries would probably be greater than are obtained under the methods of treatment now adopted.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

Primary Cancer of the Ovary.—Contracted Pelvis.—Adenoma of the Labium.—Exhibition of Specimens.

A MEETING of this society was held on July 4th, Dr. W. R. DAKIN, the President, being in the chair.

Dr. A. LOUISE MCILROY read a paper (followed by a demonstration) on Primary Cancer of the Ovary. Primary cancer of the ovary occurred in women about the time of the menopause or after, but was found in young patients; in the latter cases menstruation was influenced, cessation of the periods occurring. Previous child-bearing had no influence. Pain was not a marked symptom, patients seeking operation on account of the swelling of the abdomen. Ascites was present in most cases. Metastasis depended upon the duration of the disease and the integrity of the tumour capsule. The probability of recurrence was great. Malignancy was rarely suspected previously to the operation. Both ovaries were frequently affected, one showing a more advanced stage of the disease than the other. In the early stage the capsule was firm but later it became broken down and tumour tissue proliferated through it. Germinal epithelium was absent as a rule. No Graafian follicles or corpora lutea were found. Previous benign change in the ovary was always present. The most common forms of cancer in the ovary were the glandular cystic form and the alveolar with connective tissue increase. The growth was found near the surface and in the folds in early specimens. The origin of the growth was from the follicle cells and from cells which had been derived from the germinal epithelium. The so-called ova of the German pathologists were masses of degenerated protoplasm; they were retrogressive products of the follicle cells. Karyokinesis was not well marked in these cancer-cell tumours. The cells found in cancer of the ovary resembled those found in benign growths, but differed in their distribution, irregular arrangement, and in the amount of proliferation.—Dr. T. W. EDEN said that on two points, at any rate, Dr. McIlroy appeared to have made an important contribution to their knowledge. One point was that she had traced the invasion of the ovarian stroma by cells derived from malignant changes in the germinal epithelium. The second was that she believed she had traced the transition stages by which the epithelial cells of a benign cyst became transformed into the malignant cells of an adeno-carcinoma.—Dr. H. RUSSELL ANDREWS congratulated Dr. McIlroy on the excellent demonstration that she had given and asked her whether her researches had led her to agree with the teaching of some German writers that many adenomatous or pseudo-mucinous ovarian cysts which appeared to be perfectly innocent to the naked eye proved to be malignant on microscopical examination. If this teaching were accepted it became the surgeon's duty to remove all adenomatous ovarian tumours whole without diminishing their size by tapping, however large they might be.—Mr. J. S. FAIRBAIRN said that there was one point in the paper which he had not been able to follow and that was the statement that the carcinomatous tumours in all cases followed on a previously benign growth. The proof of this was far from complete and, as he understood, was based on observation of histological changes in different parts of the tumour, in other words, on tracing the transition of a regular goblet-celled epithelium into an irregular epithelium growth of carcinomatous cell.—Dr. H. WILLIAMSON said that from his own observations he could confirm two of the conclusions which Dr. McIlroy had arrived at. The first was with regard to the development of the cells of the membrana granulosa and the second was the recognition of the part played by later downgrowths of the germinal epithelium in the genesis of ovarian tumours.—Dr. MARY THORNE did not consider that pain was such a very rare symptom in the earliest stage of carcinoma of the ovary and quoted a case of her own in which acute pain was the first thing which attracted attention.—Dr. MCILROY replied.

A short communication was read by Dr. O. J. NEPEAN LONGRIDGE on 64 Cases of Contracted Pelvis. These cases were treated during 1905 at Queen Charlotte's Hospital. The system of admission was arranged so that it was possible to recognise and treat if necessary the cases of contracted pelvis at an early date. The results in these cases were satisfactory as regarded the mothers, no death or serious complication being noted. Eight infants died, three of whom were suffering from some abnormality incompatible with life. A special feature of this series was a group of 14 cases in which labour was unaided and spontaneous, the most remarkable case being a primipara who gave birth to a living child weighing 5 pounds and 12¾ ounces through a true conjugate of two and seven-eighths inches in ten hours. Nine of these patients were primiparæ and five were multiparæ. Two of the infants were born dead, one being macerated and one hydrocephalic. Labour was induced by bougies in 17 multiparæ and in six primiparæ. The date of induction was determined by estimating the relative size of the head and the pelvis. Delivery was unaided in 17 cases, five patients were delivered by forceps, and one by version. The mothers all made a good recovery and one infant was born dead. A second infant died on the third day with an imperforate anus. The time which elapsed between the passage of the bougies and the birth of the child averaged 92·6 hours. In 18 of the 64 cases delivery was brought about by forceps and in five after induction; the mothers and infants did well with the exception that in one case the cord was prolapsed and the infant died. The occiput was posterior in 14 cases and was rotated forwards by the hand in six. Version was performed in six cases in which contraction was present. Two infants died and the mothers did well Cæsarean section was performed in nine cases. The mothers all did well and one infant died. In one case the operation was performed for the second time. The treatment of contracted pelvis appeared to be narrowing down to two methods of election—namely, induction and Cæsarean section, and the experience gained at Queen Charlotte's Hospital tended to show that the former was a satisfactory procedure with a conjugate of three and a half inches and over, whereas Cæsarean section was the best method to adopt in cases with conjugates of about three inches and under.—Dr. W Rivers Pollock thought that Dr. Longridge in his excellent paper had spoken too disparagingly of de Ribes's bag. If the bougie failed for three days to bring on labour it could be safely and rapidly induced by the introduction of the bag followed by traction. When the bag was expelled the os uteri was fully dilated and rapid delivery could be safely effected. The uterus would be found to retract and contract well after the expulsion of the placenta.—Mr. J. H. Targett congratulated Dr. Longridge on his interesting and valuable clinical report of the work done at Queen Charlotte's Hospital during 1905. With regard to the use of de Ribes's bag he found it a valuable means of inducing uterine action when bougies had failed to excite premature labour. He thought that it was best to introduce the bag in Sims's position and to place it between the membranes and the uterine wall. By so doing compression of the umbilical cord was prevented and the prematurely born child did not suffer from direct uterine pressure as after the escape of the liquor amnii.—Dr. Longridge replied.

Dr. Williamson read a short communication on Adenoma of the Labium. The patient from whom the specimen was removed was an unmarried woman, aged 62 years, who for two and a half years had suffered from a slight blood-stained vaginal discharge and on one occasion, a year before she came under observation, from a somewhat profuse hæmorrhage. On the right labium majus was a small growth equal in size to a split pea; it was soft, of a pinkish colour, and bled readily on touch. The growth was diagnosed as an epithelioma and was removed by Dr. F. H. Champneys in 1903. No recurrence had taken place. On microscopical examination the tumour proved to be an adenoma composed of irregular branching tubes lined by columnar epithelium; some parts of the growth were so irregular as to suggest carcinoma. Three similar cases had been reported, two by Pick and one by Schickele, and brief accounts of those cases were given. Dr. Williamson then discussed the pathology of the condition, reviewing the theories of Schickele and Pick; the former regarded the growths as arising in abnormal "rests" of the Wolffian body and duct, the latter believed them to be adenomata arising in connexion with the sweat glands. Dr. Williamson regarded the latter theory of origin as the more probable. Attention was directed to the close resemblance which the growths bear to certain forms of malignant adenoma and he concluded by stating that as this case had been under observation longer than any of those previously recorded he offered it as a contribution to the natural history of the growths —Dr. Herbert R. Spencer did not think that these growths were as rare as appeared in the paper. He had met with two cases himself and thought that Dr. Williamson had overlooked some cases in the literature. The origin of these growths was by no means certain. Mr. Lawrence, the curator of the museum at University College, was of opinion that they probably arose in sebaceous glands on the grounds that they had a distinctly lobulated structure and the tubules had such a distinct racemose arrangement as to leave no doubt that they did not arise from tubular glands. —Dr. Williamson in reply, said he thought that the tumours referred to by Dr. Spencer were sebaceous adenomata and belonged to a class different from those now under discussion.

The following specimens were shown:—

Dr. Spencer: Specimen from a case of Cæsarean Section followed by Hysterectomy for Fibroids complicating Labour.

Dr. Andrews: (1) A Degenerating Fibroid removed during the Puerperium; and (2) A large Cystic Fibroid.

OPHTHALMOLOGICAL SOCIETY.

Congenital Distichiasis.—The Structure of the Choroid at the Macula.—Unilateral White Eyelashes and Tufts of Hair.

A meeting of this society was held on July 13th, Mr. J. Priestley Smith, the President, being in the chair.

Mr. A. R. Brailey read a paper on Congenital Distichiasis and gave a clinical description of a case together with the result obtained by making a microscopic examination of a small portion of the lids. The chief point of interest was the fact that the Meibomian glands were apparently completely absent and their place was taken by hair follicles. He then gave a description of four other cases seen in the clinic of Professor Fuchs at Vienna. These were the only cases seen there during a period of 20 years and show how extremely rare this deformity is. He also described a case reported by Kuhnt. Mr. Brailey drew attention to the distinction which should be recognised between trichiasis and distichiasis and urged the advisability of limiting the latter term to the congenital cases. He gave a list of other cases which had been reported.

Mr. C. H. Usher read a note on the Choroid at the Macular Region. He drew attention to the fact that in sections of albinos' eyes examined by Mr. E. Nettleship and shown at the meeting of the society in November last pigment was present in the choroid but limited to the spot corresponding to the yellow spot region. He had since examined 11 normally pigmented eyes and had found: (1) a deeper pigmentation of the retinal epithelium at the yellow spot region and an increased thickness of this layer; (2) a marked increase in the pigmentation of the choroid; and (3) an increase in the thickness of the choroid. From the above observations it might be expected that if pigment was present at all in an albino's eye it would be found in the macular region.

Mr. Usher also read a paper on a case of Unilateral White Eyelashes and Tufts of Hair. The patient was a girl, aged three years, whose eyelashes on the left side were quite white and she also had two tufts of white hair on the left side of her head. There was nothing else abnormal in the mother or child and the pregnancy was normal in every way. The condition was first noticed about the third day after birth. All the eyelashes on the right side were light brown in colour, so also was the greater part of the hair of the head. The family history was carefully drawn out and although there were some albinos in the family yet no other member seems to have had this peculiar condition.

Dermatological Society of London.—A meeting of this society was held on July 11th, Dr. H. Radcliffe Crocker being in the chair.—Dr. James Galloway showed a case for diagnosis of a Seasonal Eruption on the Face of a middle-aged woman. Dr. Galloway had thought that the condition was possibly a form of lupus erythematosus, but there had been vesication and he was inclined to consider it as allied to hydroa æstivale. This opinion was supported by the majority of those present.—Dr. Crocker showed a case of Mycosis Fungoides of very typical character in an old man who had been treated with the x rays with considerable benefit before going to Dr. Crocker. The disease was now present on the legs, the forehead, and the face, the skin in these parts being much infiltrated and the patient suffering from great irritation. The treatment with the x rays was being continued.—Dr. T. Colcott Fox showed a case for diagnosis—a very extensive Pink and Scaly Eruption occupying the greater part of the trunk, the arms, forearms, and hands; there had also been vesicles on the fingers and toes. Dr. Fox suggested the diagnosis of pityriasis rosea which found many supporters.—Dr. Crocker and Sir E. Cooper Perry thought that it was more probably a case of seborrhœic eczema.—Mr. Malcolm Morris showed a father and daughter, the subjects of Congenital Tylosis. In both patients the skin of the palms and the soles had been immensely thickened and hardened from birth, the keratodermic areas being bounded by an erythematous border. There were two other children in the family who remained wholly free from the disease.—Mr. George Pernet showed a young man whom he had treated for Linear Nævus of the Hand and Forearm with scraping and the application of carbolic acid. Some members considered the case as more typical of tuberculosis verrucosa cutis.—Dr. J. M. H. Macleod showed a case of Multiple Idiopathic

Keloid in a man, aged 65 years. He had a large patch of keloid on the chest and several smaller patches of similar character upon the shoulders and back. All the patches were violently itchy. No history of any previous injury to account for the development of the keloids could be obtained.—Dr. Wilfrid S. Fox showed a typical case of Adenoma Sebaceum in a little boy, the subject of epileptic fits. The disease had been noted for the first time at the age of three years after the child had had several fits.—Dr. E. G. Graham Little showed: 1. A girl, aged five years, who had had an extensive eruption of Sclerodermia upon the scalp, the face, and the body for the past 18 months. There was also marked hemiatrophy of the face on the affected side and of the tongue. All the lesions were on the left side of the body. The child appeared to be delicate and had a quantity of downy hair covering the midvertebral line. 2. A case of Rodent Ulcer in an elderly man who had had this ulcer for 25 years and who had been treated for it with some success with the x rays. In the past fortnight he had developed upon the site of the unhealed rodent ulcer a tumour of the size of a Barcelona nut. The general opinion was that this fresh development was epitheliomatous and in view of the extreme rapidity of its growth immediate excision was recommended.

Reviews and Notices of Books.

A Handbook of Climatic Treatment, including Balneology. By WILLIAM R. HUGGARD, M.A., M.D. R.U.I., F.R.C.P. Lond., H.B.M. Consul at Davos, Switzerland. London: Macmillan and Co. 1906. Pp. xvi.-536. Price 12*s.* 6*d.* net.

Dr. Huggard in the valuable book before us has produced a volume which should serve as a most useful work of reference for any practitioner who has frequently to recommend climatic or balneological treatment for his patients. We are told in the preface that the chief aims of the book are to place the therapeutics of climate on a sure foundation and to enable the physician readily to master the principles of choice in the selection of baths and mineral waters. We may congratulate Dr. Huggard upon the success which has attended his treatment of his subjects, for the result has been to produce a volume which is a mine of useful information, written in a manner most convenient for reference and in interesting style. The critical character of his consideration of the uses and actions of climate and the rigid analysis to which he subjects the claims of various health resorts, watering places, and baths from the standpoint of physiological experiments, as well as that of experience, greatly enhance the value of the work. We find no mere copy of the self-advertised virtues of the various resorts and their mineral waters but simply the indications which should suggest their recommendation and the benefits which may be expected from them, while their limitations and contra-indications are carefully set forth.

In analysing the action of climate and its influence upon bodily health and functions a section is devoted to a concise presentation of the principal factors of meteorology, with especial reference to their medical bearing. The atmosphere, temperature, humidity, barometric pressure, and atmospheric electricity are all considered in detail, and the influence which each factor exerts upon climate is carefully and exhaustively set forth. This section concludes with a chapter devoted to general influences affecting climate, including those of land, water, wind, forests, and mountains.

The second section deals with the physiology of climate; in it the various meteorological factors are considered from the standpoint of their actions upon the organism in health and disease. This part of the work contains a wealth of most interesting information upon the reaction of the organism to changes in its surroundings, each meteorological factor being considered separately in regard to its effects upon the body generally and upon the various organs and their functions. This section contains exhaustive references to the various experimental observations which have been made on the subject and forms a most comprehensive and scientific basis from which to study the practical applications of climatic treatment. The general principle which Dr. Huggard deduces is that "the most fundamental point in the action of climate is its influence on tissue change." The demand for tissue change depends "on the surrounding temperature, as well as on the wind, moisture and all other circumstances affecting the abstraction of heat." The importance, however, of the patient's power of response is very strongly emphasised; it is found that individuals react very differently to the same external conditions, and in recommending a certain climate it is necessary to gauge beforehand how the particular individual will respond to the greater or less demand for heat induced by it. It is obvious that this determination of the patient's powers of response is of great importance, and Dr. Huggard states that careful inquiry of the patient as to how he bears heat and cold, combined with a careful study of the bodily functions, will enable a right conclusion to be made in the great majority of cases in accordance with his general principle that "the best climate for a person is that where nutrition is at the highest level, and nutrition is at the highest level where the demand for tissue change—the demand for the production of heat—best coincides with the patient's power of response." An interesting discussion of the question of acclimatisation is also given in this section.

The third part of the book deals with climates and health resorts and commences with a classification of climates upon the basis of the demand made by each climate for the production of heat. The various health resorts of the world are then described, with especial reference to the climatic conditions obtaining at each and their value in different conditions of disease or ill-health. An interesting chapter on the Ocean as a Health Resort is included in this section.

Part IV. is devoted to the consideration of baths and mineral waters. The therapeutics of the different forms of baths and of the external application of the various mineral waters are critically considered and in like manner the actions of the various waters when taken internally are carefully set forth and compared with the known pharmacological actions of their principal constituents. The various waters are classified into two main groups—depurative and tonic. The former comprises the abluent, stomachic and diuretic, and the aperient waters, the latter the hæmatogenic, and the alterative and nervine. The examples of the different groups are given with analyses of their various springs and the conditions for which they are recommended. Throughout this section Dr. Huggard is most cautious in his recommendations. At the commencement he refers to the air of mystery which has always hung around mineral waters and points out that "owing to vague tradition and to the parade in analyses of strange and unimportant constituents mineral waters are still more or less cloaked in mystery," and further points out the special qualities which custom and tradition may have assigned to different waters of essentially the same therapeutic value, instancing the purely arbitrary distinctions which therefore have to be borne in mind in order to avoid "sending to Saint-Sauveur, which is essentially a ladies' bath, a case suitable for Aix-la-Chapelle, which is chiefly given over to the treatment of syphilis in men." As a temperate and practical exposition of the uses of baths and mineral waters this section of the work leaves nothing to be desired.

The concluding part deals with the therapeutics of climate and mineral waters under the headings of various diseases. Their application in cases of obesity, of metabolic disturbances, of heart disease, and various local diseases is

Reviews

described. Under the heading of Tuberculosis are given the principles upon which depends the selection of a climate or of a sanatorium for different classes of cases.

Dr. Huggard's book represents the outcome of very considerable labour; it contains a large amount of useful and practical information in convenient form which it would be difficult to obtain elsewhere. The method he has adopted necessarily entails considerable repetition but this is an advantage from the point of view of facility of reference and, moreover, he is always clear in his statements and practical in his recommendations.

Pathogenic Micro-organisms, including Bacteria and Protozoa: a Practical Manual for Students, Physicians, and Health Officers. By WILLIAM HALLOCK PARK, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Research Laboratory of the Department of Health, City of New York. Assisted by ANNA W. WILLIAMS, M.D., Assistant Director of the Research Laboratory. Second edition, enlarged and thoroughly revised. With 165 engravings and four full-page plates. London: Henry Kimpton. 1906. Pp. 556. Price 18*s.* net.

THIS work possesses a distinct character and individuality which make the appearance of a second edition very welcome. Amongst the large number of text-books of bacteriology by American authors it is a relief to find one in which the introduction of purely scientific matter appears to be considered as well worth some slight loss of the hard practical efficiency which seems to be the ideal of most of those excellent works. There are, as might be expected, many evidences in the book of the connexion of the author with the Department of Health of New York and the incorporation of much original work done in the research laboratory of that department makes it differ from other text-books and gives it a peculiar value for the practitioner and health officer. As a consequence of this introduction of original work there appears to be an inequality in the treatment of the various subjects but the inequality is due rather to the fact that certain sections rise considerably above, rather than that the less conspicuous sections fall below, the level found in the average text-book.

An important feature of the present edition is the large section devoted to the protozoa the importance of which in the production of disease is now so fully recognised. The bacteriological section has been very thoroughly revised and brought quite up to date. The general plan of the book is that found in most text-books on the subject and of the early part of the work on the classification, cultivation, and general biology of micro-organisms little need be said except to point out that the chapters on practical disinfection and sterilisation are good and that in the consideration of the substances concerned in agglutination the results of much valuable work on the relations of the "group" to "specific" agglutinins are embodied. These results seem likely to be of much importance in differentiating and grouping members of that large and puzzling class of organisms to which belong the typhoid, dysentery, and colon bacilli.

Part II. deals with the pathogenic bacteria and opens with a chapter on Diphtheria which is full of information derived from personal observation and the work of investigators in the research laboratory. The best account of the pseudo-diphtheria bacilli and their relation to the virulent bacillus which we know is to be found here, and after full discussion the practical conclusion is reached that, "in this region (New York) at least, non-virulent diphtheria-like organisms retain their characteristics under various artificial and natural conditions and that they may be regarded from the public health standpoint as harmless." The author does not appear to accept Ehrlich's theories on the constitution of diphtheria toxin as proved.

The chapters on Tetanus and the Colon and Typhoid Bacilli are also important, and the statements made as to the relationships existing amongst the members of these latter groups, as determined by the agglutination test with sera from which the group agglutinins have been removed, are of interest. According to Dr. Park the members of the colon group do not constitute a distinct species as is the case with the typhoid bacilli, and the intermediate group is similarly divisible into a paratyphoid group—a distinct species—and a paracolon group containing several distinct species of culturally similar bacilli. In America the dysentery bacilli have attracted much attention and the more complete study of this group has led to the discovery of races which go far to bridge over the gap between the bacillus of Shiga and the colon bacillus. These intermediate organisms are grouped together as paradysentery bacilli. A long section is devoted to the bacillus tuberculosis. Very full directions are given for testing animals with tuberculin and for examining sputum for organisms associated with the tubercle bacillus with a view to prognosis; an estimate of the value of the results obtained is given. With regard to the vexed question of human and bovine tubercle, it is held that these bacilli represent very distinct races, so different, in fact, that it is possible to state that intestinal and mesenteric tubercle in children is largely due to bovine infection. The bacteriological examination of water occupies a short chapter, while a longer one deals with the bacteriology of milk in relation to disease, and much useful information acquired by the Health Department on the relations between the micro-organisms of milk and the summer diarrhœa of children is given.

The third part of the book, devoted to the diseases caused by protozoa, is written by Dr. Anna Williams, except the chapter on Malaria which is contributed by Mr. L. B. Goldhorn. This observer considers that it is possible from the morphology of the parasite to distinguish between recent infection and a relapse.

The book is well printed and the illustrations are well reproduced. In some cases the original photographs do not seem to be quite up to the standard of modern work. Dr. Park's book, since it does not simply add to the stock of text-books but contains much special information, may be strongly recommended to the serious student of bacteriology and public health.

A Practical Guide to the Administration of the "Nauheim" Treatment of Chronic Diseases of the Heart in England. By LESLIE O. THORNE THORNE, M.D., B.S. Durh. Second edition. London: Baillière, Tindall, and Cox. 1906. Pp. 75. Price 3*s.* 6*d.*

THIS little volume contains a good and full description of the details necessary in carrying out the mechanical treatment of chronic diseases of the heart. Dr. Thorne maintains that the "Nauheim" treatment can be efficiently administered in England, and in this book he gives minute directions as to how the baths are to be prepared and the manner in which the exercises are performed. In this edition he gives a good description of Schott's exercises and also illustrates the letterpress by means of 78 photographs, thereby considerably aiding those practitioners who have not actually seen the exercises demonstrated to understand more easily the necessary movements of the arms, the legs, and the trunk. These exercises are perfectly easy to learn but require some care in ascertaining whether the right amount of resistance is being exerted by the attendant, or, more important still, whether the movements are being made too rapidly. We are willing to grant that if these exercises are performed regularly and under skilled supervision the effect produced is quite as satisfactory as when they are carried out at Nauheim. As to the baths, we are not entirely convinced. It would be interesting to have an investigation conducted as to the comparative effect of the baths carried out with 20 to 40 gallons of water heated to 97° or 98° F. on the one hand and with water containing from four to five pounds of Droitwich salt and from five to six ounces of calcium chloride heated to the same temperature on the other hand—that is to say, to ascertain whether the salutary effects are due to the temperature of the water or to the contained salts. The "carbonated effervescent bath" would then be similarly tried. Such comparative trials may have been made already but we are not aware of them. We have, however, seen several forms of artificial "Nauheim" baths and were not favourably impressed with them.

Dr. Thorne, however, has evidently taken much trouble in the preparation of the book and some benefit will probably be obtained by following out his directions in suitable cases, for the number of patients who might receive benefit by a visit to Nauheim and are unable, for various reasons, to go there must be very large. Systematic exercise is doubtless a valuable therapeutic measure in certain cases of chronic diseases of the heart and Dr. Thorne indicates the nature of such cases. We thoroughly agree with him when he says: "The selection of suitable cases for treatment by the Nauheim methods is of vital importance, as there is no doubt that to treat thus every sufferer from chronic heart disease, irrespective of degree or kind, is most unwise." To apply the same therapeutic measures to every case of heart disease can only result in bringing into disrepute a valuable method of treatment.

A Handbook of Medical Jurisprudence and Toxicology for the use of Students and Practitioners. By WILLIAM A. BREND, M.A. Cantab., M.B., B.Sc. Lond., of the Inner Temple, Barrister at-Law. London: Charles Griffin and Co., Limited. 1906. Pp. 287.

THIS manual is intended primarily for the use of students and its scope should be sufficient for the ordinary pass examinations. Each branch of the subject has been dealt with in sufficient detail to enable the student to obtain a fair knowledge of forensic medicine. All the facts are clearly expressed but the letterpress is not over-burdened with illustrative examples or reports of trials. The whole work, however, is written in an interesting manner and should well serve the purpose for which it is intended.

The book should also be of value to the practitioner. To further that object Dr. Brend has made a successful endeavour to deal practically with those matters calling for the exercise of medico-legal skill and knowledge which are most likely to be met with in everyday clinical experience. To prepare evidence properly and to stand the test of cross-examination in criminal or civil cases may prove no easy matter, but in this handbook numerous hints are offered which will greatly assist the medical witness. Chapter XVII., entitled "The Obligations, Statutory and Moral, of the Medical Man," is of especial interest. A practitioner has many duties besides those of tending and healing the sick. Some of these—such as notification of infectious disease or certification of death—are imposed upon him by statute under pains and penalties for the non-performance thereof; others—as, for instance, the obtaining of a dying declaration from a wounded person or the assistance necessary to prepare a will in an emergency—have only a moral sanction for their performance. Circumstances of this nature are constantly occurring in ordinary practice and the precise methods of dealing with all such eventualities require to be known thoroughly. In the chapter now under consideration these points are dealt with *seriatim.* The directions and comments are brief and concise and we believe are perfectly trustworthy. The remarks on "When to refuse to certify or to inform the coroner of a death" are especially worthy of attention.

Another matter of considerable interest which naturally receives notice is that of malpraxis—that is to say, failure to exercise "reasonable skill and care in the treatment of a patient." A medical man is not, of course, expected to be infallible and cannot be held responsible for *bonâ fide* mistakes in either diagnosis or treatment, provided the errors are such that any prudent practitioner might in the circumstances have made and that no negligence has been displayed. Some cases are quoted which show the class of action likely to be brought against a medical practitioner for actual or supposed malpraxis. The various medical defence societies are doing most valuable work in protecting their members against such actions.

The question of professional secrecy receives due attention, as does also the subject of "undue influence."

We have perused the book with interest and can recommend it as a trustworthy work on medical jurisprudence and toxicology and one especially suitable for students and practitioners of medicine. Many of the works on forensic medicine are written with a view to being useful to members both of the medical and the legal professions, thereby rendering the books themselves bulky and any desired piece of information perhaps somewhat inaccessible on account of the large number of cases which are quoted, often in considerable detail. In this handbook, however, the necessary facts only are stated and consequently its contents will be more acceptable to those for whom it is intended.

Annual Report of the Veterinary Department of the Board of Agriculture and Fisheries for the Year 1905. Printed by Darling and Son, Bacon-street, E. 1906. Price 1*s.*

THE report is, as usual, divided into two parts: the report of the chief veterinary officer and that of the assistant secretary of the animals' division. From the combined reports we gather that at length swine fever has very materially decreased and that the number of outbreaks reported is considerably less than that of any preceding year. Thus, whilst in 1885 70 counties were affected and 7926 outbreaks were reported, with a total of 38,798 pigs attacked, in 1905 we find only 87 outbreaks reported and 3876 swine slaughtered as diseased or as having been exposed to infection. The decrease in the number of outbreaks of swine fever in Great Britain since the year 1901 has been continuous and the improvement has been shown in all parts of the country. It is also noticeable that in counties where the disease is still present the outbreaks are confined to much more circumscribed areas. By the application of the Swine Fever Order of 1903 to a county or group of counties, together with the suspension of the existing local regulations, the free movement of swine can be permitted throughout the entire area, whilst general restrictions can at once be imposed where such a course is necessary for the prevention of the spread of the disease. Sheep scab has also been successfully dealt with and shows a very material decrease. In England only 422 outbreaks were reported, as compared with 644 in the previous year; in Wales, 406, as compared with 708 in 1904; and in Scotland, 90, as compared with 66, making a total decrease for the whole of Great Britain of no fewer than 500 outbreaks. This is attributable largely to the increase in the practice of dipping.

In regard to glanders, the returns for the year show that there were 315 less outbreaks than in 1904, 590 fewer horses being returned as attacked by the disease. Apparently it is only now the question of obtaining money from the Treasury funds which is keeping the Board from adopting stern measures by which it is hoped to eradicate this fatal disease of horses and man. It is purely a question of fair and reasonable compensation to be granted to owners for all horses slaughtered as being in-contact animals and *only proved to be diseased by the mallein test*. It has not at present been found possible to obtain the necessary funds and it is to be hoped that it will not be long before the Government will see its way to grant these. Epizootic lymphangitis has been effectually checked and it is gratifying to read that only 19 cases have been met with outside the animals of the Army Veterinary Department. Anthrax shows only 907 outbreaks as compared with 1049 in 1904, but it is pointed out that the total number still exceeds considerably the total of any year since 1897 and, as stated by the assistant secretary to the Department, the control of this disease cannot yet be regarded as placed on a satisfactory basis. Parasitic mange and swine erysipelas each receive individual mention and it is with the greatest gratification that we note the entire absence of the heading of the word "rabies," this disease now being legitimately considered as extinct in Great Britain.

In conclusion, it may be said that the work of the Veterinary Department of the Board of Agriculture and Fisheries has been beneficial, both from the professional and the administrative aspects, to the stock owners and to the public at large.

Handbuch der Geburtshülfe. (Handbook of Midwifery.) In three volumes. Edited by F. VON WINCKEL. Vol. II., Part I., pp. x.–653; Part II., pp. xii–798. Glasgow: F. Bauermeister. Wiesbaden: J. F. Bergmann. Price 14*s.* 9*d.* and 18*s.* 8*d.* respectively.

THE appearance of the second volume of this important work will be welcomed by all who are interested in this branch of medicine. The complete work is destined long to remain a classic so far as the practice of German obstetricians is concerned.

The first half of the second volume opens with an article from the pen of the editor continuing his previous review of the history of gynæcology from the sixteenth to the eighteenth centuries and including a part of the nineteenth century. The succeeding articles are concerned with the physiology and dietetics of the puerperium and of the newly born infant. In his article on the puerperium Knapp discusses its physiology, the changes taking place during the process of involution of the genital organs, the care of the patient during the lying-in period, the diagnosis of this state, and its relations to medico-legal medicine. The important physiological processes which occur in the organs of the newly born infant in the period immediately following birth and the many important questions concerned with the study of metabolism at this period of life are discussed in detail by Seitz. The fourth section of the whole work is taken up with the Pathology of Pregnancy and its Treatment. This part of the book includes sections by Schaeffer on the Disturbances of Nutrition during Pregnancy, by R. von Braun-Fernwald on Prolapse of the Pregnant Uterus, by von Winckel on Hernia of the Gravid Uterus, and sections by Wertheim on Pregnancy complicated by mal-developments and anomalies in the position of the pelvic organs, myomata, carcinomata, diseases of the appendages, new growths, and extra-uterine gestation. Diseases affecting other parts than the genital organs are described by Freund, Meyer-Rügg, and von Winckel himself. We are surprised to find no mention of diseases of the heart in the last section; possibly this may be considered in a subsequent volume. The plan of dividing up these various subjects amongst a number of writers leads not infrequently to some repetition and greatly increases the length of the work. This can hardly be avoided and even if it could one of the most important features of a work of this kind is the opportunity which it affords of ascertaining the views of different authorities on the same or allied subjects.

The second half of the second volume opens with a consideration of the abnormalities and diseases of the fœtus during pregnancy. The first chapter on Extra-uterine Gestation is written by R. Werth and extends to some 360 pages. It is a monograph of the greatest value in which the whole subject is discussed in great detail and with a commendable appreciation of the work of others. In a handbook which contains many articles of the greatest interest this one is pre-eminent for its comprehensiveness and clearness. The author is certainly a master of his subject. The diseases of the membranes of the ovum are dealt with by Seitz who also discusses the affections of the placenta, including tubercle and syphilis and anomalies of the cord. Premature detachment of the normally and abnormally situated placenta is described by Hofmeier in the following chapters. His well-known views as regards the origin of placenta prævia are given at length and this chapter is worthy of careful study, illustrated as it is by a number of important drawings.

The next section on the changes occurring in the fœtus and placenta after the death of the ovum and missed labour and abortion is from the pen of Seitz. He also describes the etiology and mechanism of abortion and premature labour, which is further discussed by Chazan in the following chapter entitled, "The Occurrence, Course, and Treatment of Abortion" Here, again, there is necessarily some overlapping. The last chapter, by Schaeffer, is on Injuries, Traumatisms, and Operations during Pregnancy.

One of the chief features of the book is the very complete list of references which is given at the end of each article, and these should prove of great assistance to many workers on the various subjects. The whole well maintains the high standard set in the first volume and we hope that the remaining volume may follow these two as rapidly as possible. The book is one that should be in the possession of everyone engaged in teaching obstetric medicine.

JOURNALS AND MAGAZINES.

The Bio-Chemical Journal. Edited by BENJAMIN MOORE, M.A., D.Sc., and EDWARD WHITLEY, M.A. Vol. I. Nos. 6 and 7. June, 1906. Published by the Bio-Chemical Department, Johnston Laboratories, University of Liverpool; issued monthly. Price 15*s.* per volume.—This part contains the following articles: 1. Secretions by the Renal Tubules in the Frog, by F. A. Bainbridge, M.D. Cantab., and A. P. Beddard, M.D. Cantab. The authors, as the result of their experiments, suggest as a working hypothesis in regard to the secretions of urine that both the glomerular and tubular epithelia definitely secrete urine and in all probability both can secrete similar constituents in solution. When the quantity of fluid to be secreted from the blood is comparatively small the urine represents the secretions of the tubules because the epithelium covering the glomeruli is insignificant in extent as compared with that of the tubules, but when large quantities of water and salts have to be passed out the glomeruli are the active agents. During saline diuresis the urine approximates more and more to the composition of the blood *minus* proteid, whereby the maximal amount of material is excreted with minimal expenditure of energy by the kidney cells. Increased blood-flow facilitates the discharge of fluid by the glomeruli, but this can take place independently of the vascular changes. 2. A Study of the Pathological Variations in the Acidity of the Gastric Contents, especially in relation to malignant disease, by Benjamin Moore, D.Sc., W. Alexander, M.D. R.U.I., R. E. Kelly, M.D. Liverp., and Herbert E. Roaf, M.D. Toronto. These observers find that the percentage of hydrochloric acid is very sensitive to the general condition of the body and is generally reduced in all cases of illness or enfeeblement. In malignant disease the drop in acidity is especially pronounced and in the majority of cases free hydrochloric acid is entirely absent; the reasons of this are given in detail. 3. A Clinical Method of Hæmalkalimetry, with applications to determination of the reactivity of the inorganic salts of the serum in malignant disease and other conditions, by Benjamin Moore, D.Sc., and Fred. P. Wilson, M.B. Vict., an article containing the results of much patient research. 4. The Physiological Action of Ethyl Chloride, Bromide, and Iodide, and of Somnoform, by W. Webster, M.D., of Winnipeg. 5. The Effects of Antitoxic and Anti-bacterial Sera on the Opsonic Powers of the Blood, by Warrington Yorke, M.B. Liverp., and C. Harold Smith, M.B. Liverp. 6. A Study of the Influence of Nitrite of Sodium on Animal Metabolism, by N. F. Surveyor, B.Sc.

The Ophthalmoscope. Vol. IV., No. 7, July 1st, 1906. Edited by SYDNEY STEPHENSON (London) and CHARLES OLIVER (Philadelphia). Sub-editor, C. DEVEREUX MARSHALL. London: Pulman and Sons. Price 1*s.*—The contents of this number of the *Ophthalmoscope* are: 1. An article by T. Harrison Butler, M.D. Oxon., describing two new operations for Trichiasis. In one of these the misplaced row of lashes with their follicles is excised and a portion of the mucous membrane of the lower lip is adapted to the wound. No sutures are employed. In the other a modified Spencer Watson operation is performed, a triangular portion of the skin flap is removed from the upper border, which border is sutured to the skin above carrying with it the misplaced cilia. The gap left below is filled up with mucous membrane from the lip. 2. The Use of Adrenalin in Spring Catarrh, by Harold C. Grimsdale, F.R.C.S. Eng. 3. Professor R. W. Doyne describes a case of Retinitis Circinata which is illustrated by a chromolithograph. 4. Mr. Richard Gompertz supplies a note on a case of Albuminuric Retinitis simulating Optic Neuritis. 5. A translation by Dr. Percival Hay of a case described by Dr. Segalowitz of Stuttgart is given in which a Pigmentary Nævus of the Choroid was observed in a girl, aged 11 years. In addition to one large mass there were 25 other smaller ones. 6. A description of a New Binocular Coupe with Electric Light, devised by Dr. Berger. In addition to extracts and notes on current literature there is a symposium upon Cataract Extraction, in the course of which the opinions of Professor Fuchs, Professor Haab, Professor Uhthoff, and Professor Axenfeld are given.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. With lithographic plates and figures in the text. Vol. L., Parts I. and II. New Series, Nos. 197 and 198. April and June, 1906. London: J. and A. Churchill. Price 10*s.* net each.—The articles contained in the April part (the first quarterly part of a new volume) are: 1. The Life-cycle of Diplodina (Cystobia) Irregularis (Minchin), together with Observations on other Neogamous or Early Conjugating Gregarines, by H. M. Woodcock, D.Sc. Lond. The diplodina irregularis is a gregarine that is parasitic in holothuria forskali, the "cotton spinner" of the south-western coast of England; another, diplodina Minchinii, Woodcock, is parasitic in cucumaria pentactes and cucumaria planci. The diplodina irregularis lives either in the lumen of, or attached to, the blood-vessels. It is never free in the cœlom. The diplodina Minchinii inhabits the respiratory trees. It is never in the intestinal vascular system. The former enters the host by the mouth and the latter by the cloacal aperture. The gregariniform adults of both species are ovoid and motionless. Each adult is really a couple, diplodina being a neogamous gregarine, or one in which precocious association occurs. The cytoplasm has a typical gregarinoid structure. The nucleus possesses a distinct chromatic reticulum in which is suspended a single karyosome. With growth the karyosome becomes vacuolated and divides up in the nucleoplasm. The fragments become incorporated with the chromatin of the nucleoplasm. The earliest nuclear divisions are completely amitotic. All the cytoplasm is utilised to form the gametes or primary sporoblasts. Spore and sporozoite formation in diplodina irregularis follows the usual plan of development. 2. The Anatomy of Oncholaimus Vulgaris, Bast., with Notes on Two Parasitic Nematodes, by F. H. Stewart, M.A., B.Sc. St. And., M.B. Edin., Lieutenant, I.M.S. The oncholaimus vulgaris is a free-living nematode and its structure is compared with a parasitic form ascaris clavata, Rud., and Lieutenant Stewart also describes an embryo of a parasite to connect the two, if possible. 3. The Hæmoflagellates: a Review of Present Knowledge relating to the Trypanosomes and Allied Forms, by H. M. Woodcock, D.Sc. Lond., with figures in the text. This is the first part of a long and carefully drawn-up memoir by Dr. Woodcock on the blood parasites belonging to the class mastigophora which are found in the blood of vertebrate animals, opening up or extending many lines of inquiry that are of far-reaching interest in regard to the possible production and development of infectious disease in man and various vertebrate animals.—The number for June contains three memoirs. 1. The Hæmoflagellates, a Review of Present Knowledge relating to the Trypanosomes and Allied Forms, by H. M. Woodcock, D.Sc. Lond., with 41 text figures. This memoir is a continuation of one in the preceding part and describes the multiplication of these hæmatozoa; the life cycle of trypanosoma Ziemanni as compared with that of trypanomorpha; an account of the Leishman-Donovan-Wright bodies; their phylogeny and evolution, their systematic enumeration, and their relation to the spirochætæ from which the author regards them as being widely separated. There is also appended to the memoir an excellent bibliography of no less than 152 separate papers, works, and articles devoted to the consideration of these and allied blood parasites. 2. Notes on the Development, Structure, and Origin of the Median and Paired Fins of Fish, by Edwin S. Goodrich, F.R.S., with five plates. Mr. Goodrich shows that the development of the median dorsal fins is essentially similar to that of the paired fins. They, like the paired fins, arise as longitudinal folds into which grow buds from the myotomes. Fourteen or sixteen myotomes contribute to the fin each one muscle-bud along the greater part of the dorsal fin; each muscle-bud becomes converted into one radial muscle. The nerve plexus of the fins is composed of intertwining sensory fibres, along or through which the motor fibres proceed to their destination without mixing with those of other segments. There is probably no real motor plexus but the motor nerves may be gathered together with more or less longitudinal *collectors* and become again sorted out on reaching the musculature. Such collectors are found at the base of the dorsal fins. It was determined with absolute certainty that the stimulation of one nerve does not produce a general contraction of the muscles of the fin but only of a limited portion of the musculature corresponding in position to the nerve. The plates give good representations of the distribution of the spinal nerves distributed to the fins. 3. Preliminary Account of a New Organ in Periplaneta Orientalis, by Ruth M. Harrison, Lady Margaret Hall, Oxford, with a plate. The organ is bilobed, of gland-like structure, a lobe lying on each side of the nerve cord between the fifth and sixth abdominal ganglia. It opens below to the exterior by a single aperture on the ventral surface of the animal between the sixth and seventh sternites. It is found in both sexes and in the male measures about two millimetres in length.

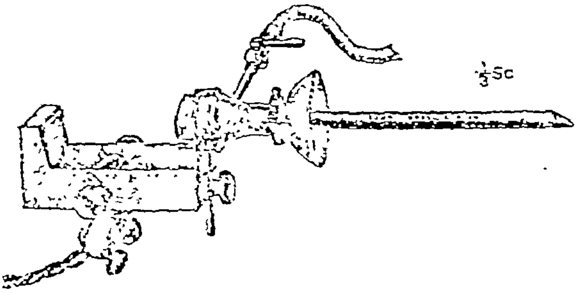
Biochemische Zeitschrift. Parts I. and II.—The continually increasing importance of a right understanding of the chemical processes that accompany manifestations of life has led to the formation of a special department of chemistry to which the term "biochemistry" has been applied. The

Germans as usual, patient and persevering, are attacking the problems that are presenting themselves with the greatest energy. That their labours may not only be preserved but may also be readily accessible and that future inquirers may not have to hunt through many volumes and pages of journals largely devoted to collateral subjects, a journal has been established with the title of "Biochemische Zeitschrift" under the editorship of Professor C. Neuberg of Berlin and we have received the first and second parts which have been published in June of the present year. The topics the consideration of which will be embraced in the journal are various, the prospectus stating that the editor means to include physiological and pathological, as well as physical chemistry, the physiology of plants, bacteriology, inquiries into the nature of immunity, pharmacology, experimental pathology, veterinary investigations, agricultural work, and the like which offer a sufficiently wide field of research. Many leading names are to be found in the list of promised contributors, such as those of Bang, Blumenthal, Galeotti, Hamburger, Kumagawa, Liebermann, Mandel, Michaelis, Nernst, Salaskin, Starling, Traube, Vandevelde, and others; those who particularly coöperate with Professor Neuberg being Buchner, Ehrlich, C. von Noorden, E. Salkowski, and Zuntz. The publisher is Julius Springer of Berlin and the price of each volume, which will consist of six parts, is 12*s.*

New Inventions.

A MODIFICATION OF LEITER'S URETHROSCOPE.

In common with many of my fellow surgeons I have for some years past been in the habit of using the instrument designed by Leiter of Vienna for illuminating the urethra. Although this instrument is admirable in many respects I have lately been using a modified form (*vide* illustration), and its superiority is so marked that I venture to bring it to the notice of my colleagues. The illumination (which when examining a dark red canal can never be too great) has been much increased by the juxtaposition of a high candle power lamp and a condensing lens which concentrates nearly all the light obtainable from one side of the lamp upon the upper part of the reflecting mirror. This condensing lens greatly increases the amount of light obtainable and when used in conjunction with the special lamp and set at its proper angle and distance from the mirror gives such a strong white light that the texture of a piece of cloth or the convolutions on the skin of one's finger can be instantly and easily distinguished at the end of a long urethral tube. In Leiter's model only comparatively few of the diverging rays are utilised—viz., those which fall on a small area at the upper part of the mirror. In the new instrument the rays from one side of the lamp are concentrated on this spot by means of the lens. This area, which should be of about the size of a sixpenny-piece, should have one-third of the circle missing—i.e., the rays passing over the top of the mirror. The pattern of the pencil of light thrown into the cannula can easily be seen on the glass window of the nose-piece (it should be of a size slightly larger than the diameter of the urethral tube). The handle has been dispensed with, as in Fenwick's model, for although preferred by some for a simple examination it is better to grasp the body of the urethroscope when any instrumentation through the cannula is necessary. The cannula is thus much more under the direct control of the hand and the presence of the handle affects the balance and the delicacy of the manipulations. The square shape of the modified instrument affords a firmer hold and one of the projecting screws of the lens carrier, falling naturally between the first and second fingers of the hand, a perfect grip and balance are obtained. The mirror can be moved freely, and when the position reflecting the maximum illumination down the speculum has been found it can be fastened firmly in place by means of a small screw-head projecting behind it upon the back of the instrument and therefore well out of the line of sight. In the old model the mirror, which was usually kept more or less loose for focussing purposes, frequently moved whilst operating by its coming into contact with cotton-holders, forceps, &c., thus plunging the part into darkness at a critical moment. All minor details have been carefully arranged. The window of the nose-piece, which now can be opened at will by a spring arrangement, was designed by me about ten years ago; it is now fitted to all Leiter's models, has the spring catch on the right side as the urethroscope is held with the left hand in all intra-urethral manipulations; the lamp has been obliquely placed and the filament arranged to obtain the best possible result. Those who have urethroscopes of Leiter's or Fenwick's pattern can have the condensing lens and special lamp fitted to them; the illumination is greatly increased by these means, and the lamps are quite inexpensive. The new instrument is fitted with von Antal's arrangement for distending the urethra with air. I would like to mention also that my friends to whom I have shown or lent the instrument have stated that they had hitherto been working in a comparatively dim light and that this illumination was quite a revelation to them. I have to thank Messrs. Down Brothers for so successfully carrying out my ideas and for producing an instrument which is not only simple and handy but practical and efficient, and which will go a long way towards popularising this method of treating chronic urethral diseases.

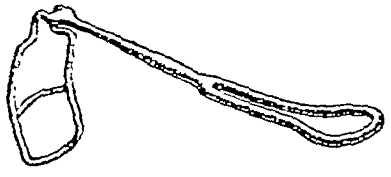


W. Wyndham Powell, F.R.C.S. Eng.

Cavendish-place, W.

A NEW RETRACTOR.

This retractor, made for me in two sizes by Messrs. White and Wright of Liverpool, is designed for use in pelvic operations but it may be of service in almost any abdominal procedure where the retraction of important organs is necessary. It is very light, being made of stout wire, shaped as shown in the figure. I have found it very useful in holding forward the uterus to enable me to secure bleeding points in the pouch of Douglas after the removal of an adherent ovary and tube.



Liverpool. W. Blair Bell, M.D., B S Lond.

Sanatoriums for Workers.—On July 14th Princess Christian laid the foundation stone of the first sanatorium to be erected by the National Association for the Establishment and Maintenance of Sanatoria for Workers suffering from Tuberculosis. The site of the building is at Benenden, Kent, where Her Royal Highness was received by Mr. C. H. Garland, the chairman of the association, and by the honorary officers. In the course of the address to Her Royal Highness Mr. Garland stated: "The sanatorium is the first of what we hope will be a number, destined to supply the wants of the workers who are suffering from tuberculosis. Apart from the accommodation for pauper cases there are not more than 3000 beds provided for the open-air treatment of consumption in this country. We have secured an estate of 250 acres and the present building is placed at a height of 230 feet above the sea level, on a slope that faces south-westward, and, as your Royal Highness is able to see, the outlook is extensive and beautiful. We are assured by our expert advisers that it fulfils all the essential requirements of a sanatorium site." The service was conducted by the Bishop of Dover.

THE LANCET.

LONDON: SATURDAY, JULY 21, 1906.

Should Nurses be Registered?

THE question of the nature and amount of the recognition to be extended to duly trained nurses is one which has greatly exercised the minds of many estimable people, both in and out of Parliament, and on it, there can be no doubt, different opinions may easily be supported by at least a semblance of argument. Medical men, for example, are known to be quite divided in opinion upon the matter. A large proportion of "fully trained" nurses maintain, and many of the matrons and other ladies who have been responsible for their training maintain perhaps even more strongly, that the instruction which they have received is of such a character as to deserve recognition and even protection from the State, in order that the public, as in the case of the medical profession, may at least be enabled to distinguish qualified from unqualified nurses when, if such be their pleasure, they may give their confidence only to the former. A registration by the State and a registration by the Royal British Nurses' Association have each had their advocates, advocates of whom it may, perhaps, be said that the so-called "claims" of the nurses have not been wholly free from a tendency to obscure, in their minds, the convenience and welfare of the institutions or classes by which nurses are chiefly employed. We do not in the least degree blame the champions in question for aiming at all that they can get, or even at a little more than is likely to be conceded to them; but our very tolerance of this position renders it the more necessary that the demands which have been put forth on behalf of nurses should be somewhat jealously scrutinised and that the consequences likely to follow from granting them without reserve should be thoroughly understood by all who are concerned.

A very important difference between the sexes, which in this particular instance should certainly not be overlooked, arises from the fact that a man, who becomes qualified as a member of any profession or calling, usually depends upon it for his livelihood for the remainder of his days, and continues to practise it, with the necessary consequence that his knowledge is kept alive and in working order. A woman, on the other hand, is always liable to be diverted from any special occupation by marriage and by consequent claims of domestic and maternal duties, and it is evident that in a calling like nursing, which affords only a slender remuneration and makes close and constant demands upon the time, it would seldom be possible for a married woman to continue its practice. If every trained nurse were put upon a State register, which was supposed to afford proof of her fitness for the duties of her calling, it would inevitably happen that a certain, even a large, proportion of the persons so registered would soon abandon that occupation on account of the claims of marriage, and would thus, either temporarily or permanently, fall out of the ranks of the calling which they had embraced. A certain proportion of them would afterwards be compelled, by widowhood or by adverse circumstances, to seek to return to their original pursuit; and any kind of professional register which failed to distinguish between nurses who had continued in practice, whose knowledge had been kept up to the high-water mark by regular exercise, and nurses who had been effectively instructed at some remote period and had since had opportunities of forgetting whatever they had known, would certainly be a document calculated in some instances to mislead. On this ground alone, if on no other, we must agree with the "Memorandum" issued by the Central Hospital Council for London in its declaration that registration, as ordinarily understood, would fail to enable the public, when engaging the services of a nurse, to distinguish between one who was efficient and one who was not. It would, of course, fail still more completely in enabling the public to discover the presence or absence of the special qualities or the special experience which render a nurse peculiarly fit for the charge of certain classes of cases, as, for instance, for the care of children or of the aged. A medical man, in selecting a nurse for a patient, would still have to be guided either by his own previous experience of her work or else by the description of her character and capabilities which he received from the responsible official of the hospital, society, or other organisation with which she was connected, for this sort of information could not be supplied by any official register.

The "Memorandum" of the Central Hospital Council, to which we have referred above and which bears on behalf of the council the signature of Sir HENRY HARBEN as chairman, is distinguished by the common sense and practical shrewdness naturally to be expected from that strong man and capable organiser; and it forcibly calls attention to the effects which would follow if some of the more exaggerated claims which have been made on behalf of "trained" nurses were admitted by the legislature. The "Memorandum" states that Sir VICTOR HORSLEY and Dr. LANGLEY BROWNE, speaking for the British Medical Association before the Select Committee of the House of Commons, suggested that it should be a legal offence for any woman to engage in nursing who had not been *fully* trained, and it supplies arguments for disagreeing with the views thus expressed. For it points out that, if the law were as the representatives of the British Medical Association would have it, a very large number of nurses, many of whom are giving satisfaction to their employers and to the public, would be prevented from earning their livelihood. It points out, further, that, while the work of some imperfectly trained nurses is bad, this is not true of the greater number of them, while the inferiority of service often arises from causes quite unconnected with any lack of technical training. Again, it may often be of importance to the poor to be able to obtain the services of a nurse who is willing to accept a lower rate of pay than is demanded by the fully trained, a position that could not be considered under a registration scheme.

The authors of the "Memorandum" have not been content with merely negative criticism and, after calling attention to the defects which would be inseparable from any system of registration and to the fallacy inherent in any comparison between the training of a nurse whose knowledge must often be secondary in importance to her personal character and the education of a medical practitioner, they proceed to suggestions for meeting the recommendations in the report of the committee of the House of Commons. That is to say, they show how the employer of a nurse, whether medical man or layman, may satisfy himself as to her training, and they propose also to obviate the alleged difficulty which may arise from a nurse being sometimes unable, owing to a change of officials or other causes, to obtain a record of her training. For the attainment of these objects they recommend that an Official Directory of Nurses should be instituted and maintained by State authority, and that every nurse who had been trained at a training school for nurses not carried on for private gain should be entitled to an entry in this directory, showing her name, the places, dates, and periods of her training, the nature and dates of any certificates which she may have gained, and any hospital appointments which she has subsequently held. Removal of a name from the directory should be consequent upon death, upon conviction of any criminal offence, upon notice that the person concerned had ceased from nursing, or upon failure for a specified time to respond to official communications. The publication of such a directory would, it is maintained, accomplish all that is really necessary, either in the interests of the public or in those of nurses, and would avoid many objectionable complications. The directory would leave each training school at liberty to develop its teaching on the lines best suited to its circumstances. No system of compulsory examination, with its attendant difficulties and evils, would be instituted. The real employer of a nurse—that is to say, the medical practitioner—would be able to ascertain from the directory the bearing of her training upon her fitness for the case for which she was required, while the public could learn whether a nurse's statements as to her training were accurate, and also, in most cases, where to seek for further information if it were desired. No deceptive pledges of efficiency would be given by any public institution, and no woman with an aptitude for nursing would be hindered from affording to the sick such services as she was able to render and they were willing to accept, or from receiving such modest remuneration for her work as she might be in a position to command. The conditions thus indicated would seem to make for the greatest happiness of the greatest number and, while they would leave the "trained" nurse in undisputed possession of the distinctions which she had earned, would place no artificial difficulties in the path of her humbler, but often not less useful or less willing, sister.

The Adulteration of Imported Food.

AN important decision of the Divisional Court affecting the position of importers of articles of food has now been carried into effect by Alderman Sir J. RITCHIE sitting to re-hear a summons which he recently dismissed subject to the stating of a case for the consideration of the High Court. The summons was taken out by the Customs authorities in respect of the importation of 127 packages of butter by the defendants, Messrs. LONSDALE & Co., Limited, which were adulterated with foreign fat but were not marked in accordance with Section 1 of the Sale of Food and Drugs Act, 1899, so as to indicate their character. The defendants at the original hearing, which took place in January, did not deny or dispute the fact that the butter was not pure butter, but pleaded in defence that they had purchased it under a warranty that it was pure and of a kind known as control butter—that is to say, that it was produced under the control of the Dutch Government. As to this, again, there was no dispute, and the honesty and good faith of the defendants in the matter were in no way doubted, but the point was taken that the defence of warranty from the vendor, which can be raised under the Sale of Food and Drugs Act where the parties to the transaction both trade in the United Kingdom, does not apply to the case of an importer buying from a person abroad. The Alderman, when he heard the summons originally, was of opinion that the defence of purchase under warranty applied to both classes of case, but the Customs authorities, not being satisfied, appealed and the Divisional Court has since upheld their contention. At the recent re-hearing it was intimated on behalf of the defendants that they had other defences which they were prepared to raise but which they had abandoned at the first hearing in order to rely upon the defence which had now been decided to be bad. They were therefore willing to plead guilty to an offence under the Act, but they urged through their counsel that it was of a technical character, committed in ignorance of the construction which would be put upon the law, and relying upon a false warranty given to them by dishonest persons. The Customs authorities did not press the matter or dispute the good faith of the defendants and the Alderman acceded to the views of both parties and inflicted a nominal penalty of 10*s.* with £3 3*s.* costs. Upon this the defendants are to be congratulated. They had the protection afforded by a good reputation for honest trade and it would have been a hardship for them had they been treated as dangerous culprits when they were no doubt the victims of unscrupulous and deceitful dealers abroad. At the same time the public are to be congratulated also that the law stands as the Divisional Court has decided, for the distinction between the purchase of food materials at home and the responsibility attaching to the obtaining of similar goods abroad is not an unreasonable one. When the sale takes place in the United Kingdom a fraudulent or an untrue warranty is likely to bring serious consequences upon the head of him who gives it and this fact is calculated to prevent its being given. The institution of legal proceedings, whether civil or not, against a firm abroad is a more difficult and a more costly matter, and the probable immunity is not unlikely to tempt dishonest people. Importers, moreover, usually deal upon a tolerably large scale, and if, in the absence of protection by a warranty, they find it advisable to examine independently the goods which they buy they are likely to be able to afford the cost of doing so. In any case such independent examination is a protection to their customers. In this particular instance it may be pointed out that the Customs authorities instituted the proceedings, so that the defendants presumably had not had the opportunity of testing for themselves in this country the quality of the butter consigned to them.

Motor Traffic Offences.

EVERYONE is saying perpetually that the motor omnibus has come to stay. Public opinion, however, may well decide otherwise, and be entitled to do so, if the motor vehicles now upon the London streets are not improved in many fundamental directions. Many of us have learned with some surprise during the last few days, days during which the papers have reported sad accidents owing to motor omnibuses, that the companies owning these vehicles have it entirely in their own hands to crowd suddenly any hitherto peaceful roadway with a busy service of noisy, petrol-reeking wagons, shaking the houses to their foundations, filling the air with an abominable stench, disseminating around them clouds of dust, and raising a clatter with their gear which makes all rest, all work, all peace alike impossible to those who live upon the track along which they pound their vehement and offensive way. The state of things now admitted to exist in some of the best residential parts of London is intolerable and opposed altogether to common justice. It is said that at the present time the public is undergoing an unpleasantness incidental to an experimental stage. But why should this experimental stage be inflicted on the public in this nauseous manner? If the omnibuses are not in a state to be put on the thoroughfares they should be excluded until they are perfected. Surely the cheap and expeditious way with which the motor omnibus performs its journey cannot be held to compensate for the foul smells which it leaves behind it and the hideous scroop of its brakes and gearing. We are told that the motor omnibus as a means of locomotion is a success, a proof of which is seen in the great numbers of people who patronise this method of travelling. We have no doubt at all that many people find the motor omnibus convenient, cheap, and quick for getting to and from their places of business, but the very places of business themselves threaten to be shut up if the evil odours and noises which it scatters far and wide are not soon remedied. We appeal to the motor engineer to turn out something better than he is doing now or disaster must fall upon his industry. And if the engineer can do no better than the present examples of construction show we hope for a prompt administration of the laws which protect the well-being and health of the community.

We have frequently called attention in these columns to the prejudice to the health and the comfort of the people of London which was threatened by the impending change of horse traffic to motor traffic At first sight it might have been thought that this change would improve the sanitary condition of the streets. It is doubtful whether at present this is the case. The old pollution arising from the presence of hard-worked horses in the streets threatens to give way to a new pollution which may have even more marked and more widespread prejudicial effects on health. We cannot forget that the combustion of petrol in the motor engine is seldom perfect and the output of poisonous gases, amongst which may be included carbon monoxide, is considerable. Besides there are quite large quantities of petrol vapour constantl escaping into the streets and petrol is undoubtedly a poison Then there are the fumes arising from the overheating o the lubricating oil, an event, we believe, which i regarded as a sign that the driver is not the master o his engines. Lastly, there is the intolerable noise of th engines and the gear, with the torture that they mean to th nervous, the delicate, and the invalid. Altogether, the con clusion cannot be resisted that the motor omnibus—in it present shape, at all events—ought never to have been pu upon the streets, and unless improvements are rapidly mad which remove these intensely disagreeable characteristic they should be refused the qualification of commo carriers on the KING'S high road. The facts that they ar offensive to our senses and destructive to property make u a serious indictment which calls for serious treatment. Th fact that they are a menace to health is a still more urgen matter. We appeal again to the motor engineer to desig something better. We are certain that he has not done hi best yet and we have a shrewd idea that the reason of thi is that he is not given sufficiently liberal estimates. Al the amenities of life must not be outraged that so-calle pioneers of quick transit may pocket dividends.

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ON Thursday, July 12th, Mr. HALDANE expounded hi new army policy and war scheme to a very full House in speech of nearly three hours' duration. The speech wa an outspoken and powerful statement of a proposal to increase the efficiency of our army and yet to economise in the sums to be provided for its upkeep by certain important reductions. As regards the Army Medical Service and army medical matters we are glad to notice that the War Minister adopted an earnest and sympathetic tone. The problems involved in Mr. HALDANE'S system of army reorganisation are so many and so complicated that it is not easy to get an accurate and at the same time comprehensive view of his proposals. There is, of course, a broad and general political side to all schemes of army reform, with which we are not directly concerned, except that an efficient army means security and peace, while insecurity or war necessarily has the most disastrous effect upon scientific progress. But with the health of the army and whatever appertains thereto we have direct business. It is not so easy as might at first sight appear to keep the distinctions between the general subject and the particular heading apart; they have a tendency to overlap. As a case in point, Mr. HALDANE dwelt with some legitimate pride and satisfaction on the fact that the South African War showed the resources of our Empire, and proved that so long as certain conditions remain fulfilled we may rely in a supreme emergency on the whole strength of that Empire. Well, this may be so, but the war also proved to all medical men the complete lack of proper provision made by the Government and by the predecessors of the Government for proper medical organisation. It is not the keenness and willingness of people to fight, but their preparedness for war that is the problem; and we make bold to say that our medical service is not properly prepared and organised at the present time to take the part that it should in any really big war. What will be required in future is not so much, perhaps, a defensive home army as the organisation of some scheme for an Imperial army with an Imperial medical service as a component part thereof, which shall be more in harmony with the new and altered conditions of the British Empire. We do not despair of some scheme of this kind being initiated at the forthcoming conference of the colonial delegates next year. Mr HALDANE spoke words of admirable sense in his references to the health of the army, and the views and intentions of the Government in regard to the medical, sanitary, and hospital services in time of war will have been carefully read and studied by all concerned. He enumerated briefly but correctly the chief sources of disease in an army on field service, and stated how it was proposed to deal with them respectively, giving a very brief outline of a scheme, already partly in operation, drawn up for that purpose by Sir ALFRED H. KEOGH, the Director General of the Army Medical Service. Taking all this into consideration we find that Mr. HALDANE'S proposals as a whole are indicative of a sincere and earnest purpose to improve our army as a fighting machine, to insure for it better medical equipment, and at the same time to save the public purse. It is inevitable, however, that his scheme should come in for severe criticism from military authorities.

Annotations.

"Ne quid nimis."

THE NEW PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

AT a meeting of the Council of the Royal College of Surgeons of England held on July 13th Mr Henry Morris was elected President and Mr Edmund Owen and Mr Rickman J. Godlee were appointed Vice-Presidents. To Mr Morris, who has thus attained the highest honour which it is in the power of the corporation to which he belongs to bestow, we offer our hearty congratulations. Mr Morris is well known as an able and energetic worker in the field of surgery in general, while he has made for himself a wide-spread reputation in that department of surgical science which deals with the genito-urinary apparatus. He has won for himself reward in the hearty recognition of the value of his work accorded by his brother practitioners, while the public has been prompt to recognise in him a friend of exceptional skill. His practical and enthusiastic interest in the cause of medical education, especially the education of the London student, was shown by his recent gift of the sum of £1000 to the endowment fund of the Middlesex Hospital Medical School. Mr. Morris's views upon medical education are worthy of the consideration of everyone who is interested in the subject, and though we ourselves have not always been able to see eye to eye with him, yet we must acknowledge his whole-hearted wish for the improvement and reform of medical education in London. It will be remembered how ably he set forth his point of view in the address delivered by him before the Medical Society of London on May 15th, 1905. A strong man, one who knows clearly what he wants and who can explain his views in simple well-turned sentences, Mr Morris should prove an able presiding officer of the corporation which has entrusted its destinies for the present to his hands. In offering him our best wishes in his new post we also take the opportunity of congratulating Mr Tweedy upon the successful conduct of the affairs of the College during the long period of his administration which has now come to an end. Mr Tweedy's labours as President of the College were complicated by the fact that he was during a part of the same period President of the Ophthalmological Society, but he allowed no call, private or official, to stand between him and the energetic discharge of his duties towards the College.

SERVIA AND THE CHICAGO MEAT SCANDAL.

IN the report by our Special Sanitary Commissioner on the Chicago stockyards which was published on Jan. 7th, 1905, there occurs the following paragraph: "Several years ago when in Servia, I was consulted by the authorities as to what could be done to improve the material resources of the country. The founders of both rival dynasties, the Kara-georgewitch and the Obrenovitch houses, had been engaged in the rearing of pigs. Indeed, pigs and prunes are the principal products of the country, so I urged that instead of sending at great cost living pigs to the Hungarian markets a model slaughter house should be constructed according to the latest principles of sanitary science. Close to Belgrade, either on the banks of the Save or of the Danube, there is an abundance of vacant space admirably suited for such a purpose. Here shambles made mainly with iron and glass, bathed in daylight and sunlight, with double ventilating roofs, could be constructed. Of course, there would be good laboratories for bacteriological research and microscopical examination. With such measures and precautions the products might attract many purchasers by reason of the security which enlightened scientific and State control would insure. Is it now too late for such arguments to be applied at Chicago?" It is obvious that much trouble might have been saved if the arguments as suggested had been applied at the Chicago stockyards. According to the *Daily Mail*, the imports of tinned meats to the Albert Docks, London, from Boston and New Orleans, which consist of Chicago products, amounted in June, 1905, to 27,000 cases; but there were only 4000 cases in June, 1905. In July, 1905, 24,000 cases came over; but in July this year not a single case was landed. Not only, however, is the Chicago trade with England thus falling off but it has been stated in several papers that Servia is going to enter the lists as a competing power. According to the *Neue Freie Presse* English capitalists are expected to come to the rescue of Servia in the difficulties which arise as a consequence of the constant conflict between that small State and her powerful neighbour Austria. Whenever Servia fails to bow to the exigencies of Austrian diplomacy some form of cattle disease and swine plague is found to prevail and the Austro-Hungarian frontier is closed to the Servian hogs or cattle. The principal trade of the country is thus paralysed. Therefore it would be a great advantage for Servia to do its own slaughtering of beasts and to preserve and to pack its own meat. For these reasons it is stated that a group of English capitalists are about to visit Belgrade with the view of making arrangements so as to found a new stockyard and packing town near Belgrade. Certainly there is an opening for the creation of this industry on scientific lines, the first object being to provide food products in such a manner that no sort of suspicion as to their wholesomeness could arise. This the Servian State might have undertaken to its own profit, direct and indirect, without interfering with any vested interest, for these do not exist in that somewhat primitive country. It would be difficult in making the attempt to find a better moment—a better psychological moment, as Prince Bismarck would have said—than the present. But the Servian Government, in its eagerness to secure such assistance as may reduce defendants presumably had not had the opportunity of testing for themselves in this country the quality of the butter consigned to them.

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TREATMENT OF EPILEPTIFORM NEURALGIA WITH THE X RAYS.

AT a meeting of the Société Médicale des Hôpitaux of Paris on May 4th M. A. Béclère and M. Haret showed a man the subject of left facial paralysis whose face on that side was disfigured with cicatrices. For seven years he had suffered from epileptiform neuralgia and had undergone a number of operations. First, all the teeth on the left side of the upper jaw were extracted in succession. Then the infra-orbital nerve was divided. No relief was afforded. Excision of the Gasserian ganglion was performed and the facial paralysis was a result. The pains disappeared but returned after six or seven months. Then the superior cervical ganglion of the sympathetic nerve was excised. The pains again disappeared but returned after a shorter interval—four or five months. Severe attacks of epileptiform neuralgia occurred from ten to 12 times daily. The pains were felt in the alveolar border of the left superior maxillary bone from which the teeth had been extracted. The x rays were applied through the mouth solely to the painful region, the neighbouring parts being protected by a tube of lead glass (*verre au plomb*). The rays fell on the alveolar border in the position of the first and second molar teeth. They were applied at intervals of a week. After the first and second sittings there was no improvement but after the third the pain diminished and a slight reaction was observed on the border of the upper lip, which had been badly protected. After the fourth sitting, which took place on April 25th, 1905, the pains disappeared and they have not since returned. M. Béclère and M. Haret did not claim to have cured the patient by this treatment but to have produced an interval of immunity of more than a year, a much better result than that given by the severe operations. If the pains recurred the treatment could be repeated. They did not assert that all cases of facial neuralgia would give such a good result but they thought that before exposing a patient to the dangers of such an operation as excision of the Gasserian ganglion this simple method of treatment should be tried.

NURSES AND THE PUBLIC VIEW OF THEIR WORK.

THERE can be little doubt that the popular views on nursing are liable to be erroneous and must be the cause of no little annoyance to those who follow that calling. On the one hand, there are some who refer to the nurse in terms of fulsome adulation as combining the qualities of the heroine with the devotion and self-sacrifice of the saint and in every way exaggerate the importance of her place in the scheme of treatment, forgetting that the duties of the true nurse are to minister to the comfort of her patient and religiously to carry out the instructions of the practitioner who is in charge of the case. On the other hand, the nurse is too often treated both unkindly and neglectfully by those who, forgetting the arduous and exacting character of her duties, make unreasonable demands upon her time and energies and deny to her that consideration in regard to her own personal health and comfort to which she is justly entitled. Thus, the nurse is not infrequently in private houses expected to be on duty or within call both night and day, to snatch her meals when she can, and to forego some of the necessary rest and exercise without which she cannot hope to remain in health. That conditions perilously near to sweating are not unknown to the nursing staffs of institutions would appear to be the case if the account given of the proceedings of the Aston board of guardians, reported in the issue of the *Birmingham Despatch* of June 27th under the heading of "over-worked nurses," is to be believed. The infirmary committee in the course of a report to the board called attention to the fact that the infirmary was understaffed, pointing out that a probationer nurse was often in charge of more than one ward—that is, of more than 50 patients. A member of the committee, in moving the adoption of the report, pointed out the severe strain upon the night staff of the hospital and stated that the night nurses often had to go without their meals owing to the pressure of their duties. It was proposed that six additional nurses should be appointed so as to have one on night duty for each ward, which would appear to be a reasonable demand, indeed the least compatible with safety. Eventually, after some discussion, it was decided to appoint three additional nurses instead of six. A member of the board who was subsequently interviewed expressed his disappointment that the guardians failed to realise the high pressure at which the nurses worked and also his fear that the incomplete night nursing would be responsible for occurrences which the guardians would deplore, owing to the number of acute cases and of mental cases which required constant attention. It is manifestly unjust, alike to the patients and to the nurses themselves, that too great a number of beds should be assigned to the care of each nurse, so as to render it impossible to carry out effectively the requisite nursing of each patient. The incident illustrates the lack of knowledge of the duties and hours of work of nurses which so generally obtains. It is certainly the duty of those in authority at public institutions and of the heads of private nursing associations to see not only that the nurses carry out their duties satisfactorily but also that they are not over-worked and that they obtain an adequate amount of rest and of outdoor exercise. The altruistic aspects of the profession of medicine and of nursing are likely to invest them with a sentimentality in the minds of certain people who forget that, after all, their exponents are in the majority of cases following them as a means of livelihood and endeavouring to do their duty to the best of their ability and that they deserve a sufficient recompense for their labours and some consideration at the hands of those for whom they often give most unsparingly of their time and ability, not merely from an exalted idea of the nobility of their calling but from a sincere and honest desire to carry out efficiently the duties intrusted to them.

INTEMPERANCE IN THE EIGHTEENTH CENTURY.

A PIONEER of temperance reform, writing in 1734, makes the now familiar complaint as to the recklessness of drinkers and the deadly effects of over-indulgence in liquor. "Though they yearly see a thousand fall at their side," says he, "and ten thousand at their right hand, yet will they not be warned. There is that predominant bewitching of naughtiness in these fiery liquors, as strongly and impetuously carries men on to their certain destruction." The old writer at first sight uses a familiar set of phrases and indulges in what looks like the time honoured exaggerations of the modern anti-alcohol crusade. Yet a closer acquaintance with his "Friendly Admonition to the Drinkers of Brandy" the burden of Austrian pressure on the economic situation, must be very careful not to grant concessions that only cover the financial requirements of the case. This is above all, and first of all, a public health question. Further, and unlike many other public health questions, it is a matter on which the general public feels very strongly. The Chicago scandal has served a good purpose in educating the masses on this subject, a fact proved by the complete collapse of the trade in Chicago tinned meats. Therefore, if the Servian Government does not feel capable of itself undertaking to create the meat industry so much needed in that country it must grant concessions to capitalists, from whatever country they may come, only under the cover of such stipulations as shall absolutely insure that they will adopt the most perfect and scientific health-preserving methods. Our Sanitary Commissioner made suggestions to this effect when called to Belgrade by the Servian Government so as to advise in regard to a scheme for the drainage of the capital. This was some nine years ago. The idea has taken time to ripen but there will not be much cause to regret such delay if good use is made of the extraordinarily favourable opportunity which the Chicago scandal provides for such an enterprise.

UNQUALIFIED DENTAL PRACTICE.

A case of some interest to the dental profession and to the public in general has recently been decided in India. A man named David Lamb, once of Liverpool, and described as a dental surgeon carrying on his "business" at Secunderabad, sued for libel a person named Dr. A. A. Mix for advertising that he was the only qualified dentist in Secunderabad, the plaintiff alleging that the statement was prejudicial to his practice and interests and claiming Rs.1000 damages. The plaintiff, so far as the evidence showed, had never attended any school or university where dentistry is taught; he had apparently spent a period of nine months with a dental practitioner and previously to this was a planter, and on the strength of this training he called himself an American dentist because he claimed that he practised the American system of dentistry, whatever that may mean. He obtained in practice the services of one named Hertz, a Doctor of Dental Surgery, to whom he paid monthly the sum of Rs.450 out of a total takings of Rs.750. On Dr. Hertz leaving the income of the practice underwent a considerable diminution. The defendant, Dr. Mix, was a Doctor of Dental Surgery of Buffalo, U.S.A., and he stated that to call oneself an American dentist the individual must possess the degree of D.D.S. In India there is nothing to prohibit the practice of dental surgery by anyone; the question therefore at issue was mainly the right amount of importance to place on the use by Dr. Mix of the word qualified and evidence was given by two medical practitioners with regard to the generally accepted meaning of the term. In giving his decision the judge held that the advertisement was not a libel and that the publication only referred to the qualifications of a dentist which admittedly the defendant possessed and the plaintiff did not possess. The judge also held that the advertisement had nothing whatever to do with the competency and capabilities of the litigants which the defendant was presumed to possess on account of his qualification and which the plaintiff also might possess in an equal, or even in a greater, degree. The case gives a good insight into the question of unqualified practice and shows the flimsy grounds on which an individual will assume the title of dentist and practise on the unsuspecting public. In India and our colonies we understand that unqualified dental practice is rampant, but unfortunately it is by no means confined to those portions of the empire, for at home the quack and the charlatan thrive despite all the efforts of those interested in trying to enforce the spirit of the Dentists Act. Cases are constantly coming into the law courts and under the notice of the proper practitioners in which not only has bodily harm been done by unqualified people but also exorbitant fees have been obtained under what is nothing more or less than obtaining money under false pretences, and yet the Government makes no effort to amend this altogether unsatisfactory condition of affairs. In the case under notice we think that Dr. Mix's ethics are open to criticism. His assumption of the title of American dentist is unfortunately only in keeping with the action of many other men educated in America who come to practise here and in our colonies. If an individual goes to practise in a foreign land he should conform to the etiquette of the profession in that land. The generally accepted position in this country is for those practising dentistry, whether medically qualified or not, to use the title of "Mr." and not "Dr." A large amount of the ill-feeling that exists towards American graduates practising in this country would cease if they would conform to the etiquette of the profession here and carry out their practice on lines more in keeping with the traditions of an honourable calling.

THE ANNUAL REPORT OF THE METROPOLITAN ASYLUMS BOARD.

The report on the work of the Metropolitan Asylums Board during the year 1905 which has just been published is an important volume of over 300 pages and contains numerous charts and tables showing the movements of infectious disease in London. The work of the Board, as may be known to many of our readers, is very far-reaching, including jurisdiction over 17 infectious hospitals, five asylums for imbeciles, a training ship, 15 schools or homes for certain classes of children, and eight land ambulance stations, besides a service of ambulance steamboats. During the year 27,162 patients passed through the Board's fever hospitals and 72 patients through the small-pox hospitals. The number of cases of scarlet fever treated was 19,362, a larger number than in any previous year since the establishment of the Board's hospitals in 1870. The increase was due not so much to the greater prevalence of the disease as to the increased percentage of persons attacked who now enter the hospitals. In 1890 only 42 per cent. of the cases notified came into hospital. Last year over 88 per cent. were admitted. The death-rates, except in the case of small-pox, compared well with the death-rates of the previous year, those for 1905 being: scarlet fever, 3·3 per cent.; diphtheria, 8·3 per cent.; enteric fever, 13·1 per cent.; other diseases, 6·8 per cent.; and small-pox, 14·5 per cent. Those for 1904 were 3·4, 10·1, 14·6, 9·2, and 6·0 per cent. respectively. The decline in the rate of mortality amongst cases of diphtheria is an extremely important feature in the statistics. In 1893, the year before the disease was treated with antitoxic serum, the death-rate was as high as 30·4 per cent. Since the introduction of the treatment the rate has rapidly declined. At one of the hospitals a record has been kept of the mortality-rates according to the day of disease on which the antitoxic serum treatment was commenced. Of 219 cases treated during the years 1897 to 1905 on the first day of the disease not a single case died, and amongst 1364 treated on the second day of the disease the mortality-rate did not rise above 5·4 per cent., whereas amongst cases not coming under treatment until the fifth day and after the rate has been upwards of 22 per cent. Not for the first time attention is drawn to the apathy displayed by the metropolitan boards of guardians in making use of the homes provided for

Rubner, Berlin N. 4, Hessischestr. 4. The business of the Congress is conducted by the secretary-general, Retired Surgeon-Major Dr. Nietner. The offices are at Berlin W. 9, Eichhornstr. 9.

ANGINA PECTORIS AS AN EARLY SYMPTOM OF ANEURYSM OF THE AORTA.

IN the *Medical Chronicle* for May Professor W. Osler has called attention to cases of aneurysm of the aorta in which angina pectoris is an early symptom. He points out that in aortic aneurysm four kinds of pain may be recognised —pain with the characters of true angina, neuralgic pain (due to pressure on nerves), pain of a dull boring character (which occurs when the chest wall is being eroded), and pain referred to the nerves of the arms or to the præcordial, pectoral, or sterno-mastoid regions. In only a small minority of cases is the pain of a definitely anginal type. Such pain may precede for months or years the appearance of an aneurysm which in the meantime is unsuspected. Professor Osler relates four cases of which the following is an example. A muscular man, aged 51 years, came under observation on March 11th, 1894. He had always enjoyed good health and said that he had never had syphilis. Since October, 1893, he had had attacks of pain in the chest which began a short time after he had gone to bed. The pain was of a dull burning character and situated just beneath the sternum. After a short time it usually passed off and he went to sleep. Then about 4 or 5 A.M. he was awakened with pain and a sense of oppression and he had to sit up in bed. Frequently there was an unpleasant sensation in the back; sometimes the pain left the front and became severe in the back. There was no special anguish or sense of impending death. He could move about during the attacks and motion gave relief. Nitrite of amyl, nitro-glycerine, and the iodides were taken without avail and lately he had been forced to use morphine. On examination he was found to be a healthy-looking man. The pupils and radial pulses were equal. Percussion over the manubrium was clear. The second cardiac sound was accentuated towards the base and was loud and ringing to the right of the sternum. There was no tracheal tugging. The knee-jerks were absent. It was difficult to determine whether there was true angina associated with an organic lesion. The attacks had scarcely the intensity of the genuine form. There was no sweating, change of colour, or immobility. Only two facts suggested an organic basis—accentuation of the second sound and absence of the knee-jerks. Six years later the patient was again seen. The attacks had gradually disappeared, though he had at intervals pains in the chest. There were stridor, diffuse pulsation over the manubrium, diastolic shock, and tracheal tugging.

TRANSPLANTATION OF THYROID GRAFTS INTO THE SKIN.

IT is well known that in myxœdematous conditions ingestion of thyroid material obtained from an animal and administered under any form will to some extent restore the normal condition but the treatment is only palliative and there is a possibility of a kind of tolerance of it being established so that the therapeutic effect is lost. Many attempts have therefore been made to transplant or graft portions of thyroid gland under the skin, but all such endeavours have failed until lately.[1] Professor Charrin of the College of France and M. Christiani have, however, at last solved the problem by improving the operative methods and employing a great many very small portions of thyroid glands taken from animals of the same species and transplanted with the utmost celerity. At a recent meeting of the Paris Academy of Sciences held on July 2nd they showed a young woman who in consequence of having no thyroid gland and showing symptoms of myxœdema had been treated with 34 drops of a thyroid solution every day. After having received 38 thyroid grafts in two operations she was able two years afterwards greatly to reduce the dose of the solution so that she now took only from two to four drops—i.e., 0·10 part by weight instead of 1·50. She has, moreover, become the mother of a normal infant and during her pregnancy the thyroid grafts became enlarged, just as happens with the thyroid gland in pregnancy under normal conditions. The thyroid grafts have preserved their glandular nature. This case seems to point the way to a new method of treatment.

THE LAY TREATMENT OF DISEASE BY MUNICIPALITIES.

A RESOLUTION was adopted by the Bradford division of the British Medical Association on June 12th which is of distinct interest to the medical profession. It runs as follows:—"That in the opinion of this meeting it is highly undesirable that the city council should carry on the treatment of disease for profit through officials at the corporation baths who are not legally qualified medical practitioners, who treat diseases which are not of an epidemic character; that such practice is illegal, the council having no powers authorising them to carry out such treatment." A copy of this resolution has been forwarded to the mayor of the town, to the medical press, and to the General Medical Council, and we are certain that all interested will see the importance of the opinions expressed. Municipalities are only properly prudent and farseeing when they strive to afford facilities for the systematic treatment of disease, but any attempt to substitute lay methods for scientific therapeutics must end in disaster.

THE DISPARITY BETWEEN THE THERAPEUTIC ACTIVITY OF FRESH DRUGS AND OF THEIR PREPARATIONS.

IT has often been pointed out that galenical preparations and active principles are not identical in their therapeutic action with the corresponding fresh drugs. In the April number of the *Répertoire de Pharmacie* M. Perrot instances opium, cinchona, coca, kola nut, digitalis, strophanthus, and the mydriatic group of solanaceous plants as examples of drugs which are not wholly represented by their active principles, morphine, quinine, cocaine, caffeine, digitalin, strophanthin, and atropine. But such active principles are usually of definite composition and their dose is readily ascertained, whereas tinctures, extracts, and other galenical preparations of plants vary considerably in strength and in medicinal action, owing to variations in the crude drugs and in the mode of preparation, and other causes. Some years ago M. Golaz, a Swiss pharmacist, attempted to produce galenical preparations of uniform strength and wholly representative of the crude drug by subjecting the fresh juice of plants to dialysis, but his method does not appear to have been adopted largely. The recent researches of M. Bourquelot and M. Bertrand on the ferments or oxydases present in plants have pointed to a probable way of improving the methods of making galenical preparations. They have shown that the oxydases, when exposed to a high temperature, lose their power of producing changes in the active principles of plants. For example, kola exerts an energetic action in cases of fatigue on the natives of those parts of Africa where it is indigenous, whereas preparations of kola made in Europe from the dried nuts are much less active. M. Perrot found that the fresh nuts and the extract obtained therefrom contain a phenolic compound, kolatine, which exerts an action entirely different from that of caffeine, to which the medicinal properties of kola in fatigue have hitherto been ascribed. M. Bourquelot prepared an extract from fresh kola nuts which had been plunged into boiling alcohol to destroy the oxydase. This extract differed suggests certain interesting inquiries. We are led to ask, for instance, what was the principal cause of death in the eighteenth century, the age when Englishmen drank more deeply than at any time before or since? Surely in that age, if in no other, a large proportion of the male population "died of drink," and cirrhosis of the liver must have been very common. It is noticeable that biography throws very little light on these subjects. We read of famous men of letters who indulged in great drinking bouts and suffered, as did Dr. Johnson, from dropsical complaints. We read much of the tortures caused by calculi and gout and of deaths from dropsy. But we hear nothing of death attributable to drink as such. Again, the bills of mortality leave us much in the dark. In the oldest bills of the time of Charles II. we find dropsy figuring next to consumption as a cause of death, the latter invariably heading the quaint list of diseases from which our ancestors died. Now this dropsy, which had carried off on an average from 20 to 30 out of every 400 of the population buried, may have been chiefly of hepatic origin. We are inclined to think that it was. The record of necropsies before the nineteenth century is most unsatisfactory. Laennec was one of the first to give an account of liver diseases, but before his time the appearance of the liver after death is a matter of the most fantastic and perfunctory description.

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[1] THE LANCET, May 26th, 1906, p. 1532.

APPENDICECTOMY AN HOUR AFTER PARTURITION.

OPERATION for appendicitis has now been frequently performed during pregnancy but we do not know of any case like the following in which it was done just after labour. In the *Intercolonial Medical Journal of Australasia* for May Mr. J. W. Dunbar Hooper has reported the case of a woman, aged 32 years, who was expecting her fourth confinement on Feb. 16th, 1906. On Feb. 6th he saw her at 9.30 A.M. She was quite well but as she was anxious he performed abdominal palpation and ascertained that the child was in the left occipito-anterior position. He examined both iliac fossæ without finding any pain. The patient took a dose of castor oil which acted satisfactorily but was followed twice by vomiting. At 3 P.M. she was in considerable pain and was certain that labour had begun but the nurse was equally convinced that the pain was unlike that of labour. At 4 P.M. Mr. Hooper saw the patient and was struck by her altered appearance. She was lying on the left side with the right knee drawn up, the face pale grey, and the expression anxious. The pulse was 120 and the temperature was 99°F. There were slight headache and distinct nausea. The patient was afraid to move because the slightest movement of the right leg produced great pain in the lower abdomen. McBurney's point was very tender. There were no signs of labour, even on vaginal examination. Acute appendicitis was diagnosed. A consultation with two other practitioners was held and it was decided to operate without waiting for the onset of labour or of suppuration. However, she was left in charge of the nurse for the night with orders to report immediately any change. On the following morning the tenderness at McBurney's point persisted and some swelling was found there. She was removed to hospital for operation but on the way labour began. She arrived at 11.30 A.M. From 1 until 3.30 P.M., when the child was born, she was kept under chloroform. At 4 P.M. Mr. Hooper slowly expressed the placenta. A distinct but not very tender mass could be felt in the position of the appendix. At 4.15 laparotomy was performed. The appendix was found adherent to the omentum and was removed. It was very large and of a greenish-grey colour. It would have ruptured if not gently handled. The patient rallied well and except for a mild attack of phlebitis recovery was uninterrupted. Dr. J. F. Mackeddie, pathologist to the Alfred Hospital, Melbourne, reported that the appendix was twisted, enormously swollen, dusky, and lustreless. In parts its wall was thickened almost to obliteration of the lumen; in other parts the dilated canal was on the point of rupture through the wall thinned almost like tissue paper. Microscopically the contents were grumous débris containing pus organisms and colon-like bacilli. Sections of the thickened wall showed chronic inflammatory changes on which acute had supervened.

A USEFUL PUBLICATION BY THE BOARD OF AGRICULTURE AND FISHERIES.[1]

THE Board of Agriculture and Fisheries has undertaken the publication of a geological survey of the soils and subsoils of London from a sanitary point of view, and we congratulate the originator upon a useful idea. The memoir deals exhaustively with the soils and the subsoils of London and its environs with reference to sites for houses. Questions of water-supply, of ground-water, and of drainage are also dealt with in their sanitary aspects. The geology of the district is described according to the nature of the subsoil, whether clayey, sandy, gravelly, or chalky. A small colour-printed map accompanies the letter-press and the memoir is further illustrated by 22 sections and drawings. The memoir is a re-issue of a small work written by Mr. Horace B. Woodward, F.R.S., additions having been made to the text, especially in the chapters dealing with water-supply and drainage; and copies may be obtained from any agents for the sale of ordnance survey maps, or directly, or through any bookseller, from the Ordnance Survey Office, Southampton, price 1*s*. 6*d*. We are constantly asked where trustworthy advice can be obtained upon the points dealt with in this small book. The public is now very much alive to the advantages of residing in a house upon a suitable foundation and medical men are more than occasionally invited to give their opinion as to the district in which a house should be hired or bought, where the head of the family must remain in London for reasons of business, and where his particular diathesis forbids him to do so save in the most favourable environment. Mr. Woodward's manual supplies suggestions for authoritative answers to all questions of this sort.

FOURTEENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

THE Fourteenth International Congress of Hygiene and Demography will take place from Sept. 23rd to 29th, 1907, in Berlin. The committee of organisation under the presidency of Mr. Bumm, President of the Imperial Board of Health, has forwarded the preparatory work of the Congress to such a degree that the invitations will be shortly issued. The work of the Congress, which will probably take place in the locality of the Reichstag, is divided into the following sections:—Section 1: Hygienic Microbiology and Parasitology. Section 2: Dietetic Hygiene, Hygienic Physiology. Section 3: Hygiene of Childhood and Schools. Section 4: Professional Hygiene and Care of the Working Classes. Section 5: Combating Infectious Diseases and Care of the Sick. Section 6A: Hygiene of Dwellings and Townships. Section 6B: Hygiene of Traffic. Section 7: Military, Colonial, and Naval Hygiene. Section 8: Demography. The direction of a scientific exposition associated with the Congress has been undertaken by Professor Geheimer Medizinalrat Dr.

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[1] Memoirs of the Geological Survey, England and Wales: Soils and Subsoils from a Sanitary Point of View, with especial reference to London and its neighbourhood. By Horace B. Woodward, F.R.S. London: Printed for *His Majesty's Stationery Office* by Wyman and Sons, Limited, Fetter lane, E.C. And to be purchased, either directly or through any bookseller, from Edward Stanford, 12, 13, and 14, Long Acre, London, or John Menzies and Co., Rose street, Edinburgh, or Hodges, Figgis, and Co., Limited, 104, Grafton-street, Dublin. 1906. Price 1*s*. 6*d*.

preservative is found. Also it is suggested that when the presence of a preservative is declared the condition of such preserved milk should be carefully examined. As regards formalin and boron preservatives the Board is advised that the presence in milk of formalin to an amount which is ascertained by examination within three days of collecting the sample to exceed 1 part in 40,000 raises a strong presumption that the article has been rendered injurious to health and that the purchaser has been prejudiced in the sense conveyed in Section 6 of the Sale of Food and Drugs Act. A similar presumption is raised where boron preservatives are found in milk to an amount exceeding 57 parts of boric acid per 100,000 parts of milk. The despatch of this circular to the authorities administering the Sale of Food and Drugs Act looks as though the Local Government Board at last means to codify the recommendations of the Departmental Committee on Preservatives and Colouring Matter in Food which reported so long ago as 1901. We have long urged for an official recognition of the findings of this committee.

DE SENECTUTE IN PUBLIC OFFICES.

A LIVELY and interesting discussion in the board room of the Islington guardians is reported on the subject of the retirement of officers of the board on or after the attainment of the age of 65 years. The particular case which gave rise to the discussion was that of Dr. James Greenwood who, according to the report of the finance committee, must be 73 years old at least. The committee, especially having regard to a probable rearrangement of districts, thinks that the time is fit for Dr. Greenwood's retirement and recommended the board to pass a resolution to this effect and to forward it to the Local Government Board. There is, of course, much to be said for retirement from public offices on the score of age. But the finance committee found itself in a minority of two on the proposal and even these two found themselves hoist with their own petard. Notice was given by Mr. Malins, one of the majority, that at the next meeting he would propose that the *two guardians* who constituted the minority should be called on to resign on account of their age. Mr. Lambert, one of these guardians, is well known as a most competent and active member of the board, of the Metropolitan Asylums Board, and of the borough council. We sincerely hope that his public usefulness will not be cut short by any such action. We express no opinion on the merits of the argument beyond saying that the case for the medical officer was well put, especially by the vigorous chairman of the board, Mr. G. S. Elliott, who shrewdly said that many men of 70 were better men than others at 40; that there had not been a single complaint against Dr. Greenwood; and that he was much respected by the poor in his district. It would seem that Dr. Greenwood is one of those exceptional men who belie their age and that he still displays an agility and activity which have always characterised him in his long Poor-law service of over 50 years. Such qualities are always interesting and may justify recognition in an age which is trying to extend the health and the life of the race.

THE ACCIDENT TO THE PLYMOUTH BOAT EXPRESS.

THE inquest on the bodies of those persons who lost their lives in the accident to the Plymouth boat express on July 1st was concluded at Salisbury by the city coroner, Mr. Buchanan Smith, on July 16th. Evidence was given that the train which according to the London and South Western Railway Company's regulations should have travelled round the curve near Salisbury station at a speed not exceeding 30 miles an hour actually did so at a speed of from 60 to 70 miles per hour. The jury returned a verdict to the effect that the deceased lost their lives owing to the derailment of the train, that the derailment was caused by the excessive speed at which the train was travelling, and that this was contrary to the company's regulations. They added a rider to the effect that every driver of a train not stopping at Salisbury ought to have his attention specially called before starting to the regulations affecting his journey and that this was not done in this case. The coroner said that the recommendation of the jury would be forwarded to the Board of Trade. Quickness of intercommunication is no doubt a desirable thing but it can be purchased at too high a cost. British railways are, it must be admitted, singularly free from accidents to trains but in many instances it is the public who are primarily to blame for delays and the possibilities of accident. In many of the companies serving the suburbs the amount of traffic has increased to a much greater extent than the roadways are really able to bear. Hence an increased number of trains, most of which are unpunctual, and unpunctuality always means the possibility of accident. Yet the public demand frequent trains and grumble if these are not provided. We may add that it is the same desire for rapidity of intercommunication which has made London streets an experimental ground for machines which are absolutely unfitted for the purposes to which they are daily applied.

THE Department of Public Health of Queensland in a bulletin dated June 9th reports that the last case of plague which occurred in Queensland was notified on May 16th of the current year. As regards the Cape Colony the medical officer of health of the colony reports that for the week ending June 23rd no case of plague in man or other animal occurred except at East London, where 2 plague-infected mice were found. As regards the Mauritius, a telegram from the Acting Governor received at the Colonial Office on July 14th states that for the week ending July 13th there were 1 case of plague and 1 death from the disease. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on July 16th states that for the week ending July 14th there were 14 cases of plague and 17 deaths from the disease.

THE King has given to the undermentioned gentlemen His Majesty's Royal licence and authority to accept and wear the insignia of the *Order of El Aliyeh* which has been conferred upon them by His Highness the Sultan of Zanzibar in recognition of valuable services rendered by them to His Highness, viz. :—Mr. Alfred Henry Spurrier, L.R.C.P. Lond. (second class); Mr. George Allardice MacDonald, M.B., C.M. Edin., and Mr. Archibald Donald MacKinnon, C.M.G., M.D. Aberd. (third class); and Mr. Henry Deedes Nutt Mackenzie, M.D. Edin. (fourth class).

A CONVERSAZIONE and dance will be given by the Irish Medical Schools' and Graduates' Association at the Hotel Great Central on Thursday, July 26th, at 9 P.M., to meet the council and representatives of the British Medical Association. Members of the Irish Medical Schools' and Graduates' Association can obtain tickets from Mr. E. Canny Ryall, 85, Harley-street, W.

AT a recent general meeting of the members of the Incorporated Institute of Hygiene Sir William H. Broadbent, Bart., was elected President and Sir William H. Bennett, Surgeon-General J. Cleghorn, Sir Alfred Cooper, Mr. A. W. Mayo Robson, and Professor G. Sims Woodhead were elected as Vice-Presidents of the Institute.

THE council and headmaster of Epsom College are issuing invitations for the annual prize distribution to be held on Founder's Day, July 28th, between 2.30 and 7.30. There will be choral evensong at 2.45 in the college chapel and the distribution of prizes will take place at 3.30 in the big schoolroom.

from the ordinary extract of kola in containing only traces of free caffeine, though from 8 to 9 per cent. of caffeine was present in the form of a complex chemical compound, probably the glucoside kolanin. The extract possessed medicinal properties equal in intensity to those of fresh nuts and afforded an excellent illustration of the value of employing drugs in the fresh state when possible and of preventing those changes which are induced by the presence of oxydases. M. Perrot suggests that further investigations on the same lines may lead to the discovery of better methods for the manufacture of galenical preparations which shall be wholly representative of the drugs from which they are made.

THE MEDICAL INSPECTION OF CHILDREN ATTENDING ELEMENTARY SCHOOLS.

On July 16th Mr. A. Birrell, President of the Board of Education, received a deputation from the British Medical Association and from the Manchester and Salford Sanitary Association. Mr. Tennant, M.P., who introduced the deputation, said that the members thereof were anxious that the clauses in the Education Bill now under discussion concerning medical inspection should be made compulsory instead of voluntary. Sir Victor Horsley and Sir William H. Broadbent both spoke in support of the aims of the deputation. Mr. Birrell adopted the stereotyped form of reply upon such occasions. He had every sympathy with the desires of the deputation but he could not see his way to grant their requests. There was the spectre of the rates and he had received a deputation from ratepayers who did not share the views of the deputation which he was then receiving. All the same, every pressure would be put by the Board of Education upon local authorities to make such arrangements as they could. We have upon various occasions, notably in our issue of Feb. 24th, p. 536, and in that of April 21st, p. 1123, given the opinion that medical inspection is most desirable. As we said in the article referred to in our issue of Feb. 24th, the State compels parents to send their children to school, or at least to have them educated, and this being so it is surely the duty of the State to find some way in which children attending school shall be prevented from being failures on account of their own ill-health or physical deficiencies or a source of danger to their fellows. In the course of the debate on the Bill during the same day in the House of Commons Mr. Tennant moved an amendment to one of the clauses to secure compulsory medical inspection of the children. Mr. Birrell said that he was in the hands of the House. He was willing to put down for the report stage an amendment to the following effect: "It shall be the duty of every local authority to provide for the medical inspection of every child on its application for admission to a public elementary school and on such other occasion as the Board of Education may direct or the local education authority may think fit." The matter will therefore be further discussed during the report stage of the Bill and we hope that in addition the question of the payment of the inspecting medical men will come up. Governments have a way of ordering people to send for medical men, without making any provision for the payment of the medical man sought for. An example in point is the Midwives Registration Act.

MICROCEPHALICS AT THE HIPPODROME.

From time to time the enterprising management of the Hippodrome includes in its programme items which have an interest not only for the morbidly curious but also for the genuine anthropologist. Last year it secured a group of pygmies from Central Africa—a race never before seen in England; they became an attraction for "society" and the subject of an elaborate memoir (not yet published) by a committee of the Anthropological Institute of Great Britain and Ireland. Some months ago a Russian gentleman took his place in the programme; he was over eight feet in height; he was huge in every respect excepting the cranial or brain-containing part of his skull which was of very ordinary proportions. His face was massive and very placid; his voice was sepulchral, but he was so obstinate and suspicious in nature that he absolutely refused to be examined or measured. At the present time three very remarkable individuals are being shown. They are supposed to be representatives of a native race of America (Mexico ?) which is now almost extinct. No history can be obtained beyond the fact that the German gentleman who now guides their destinies discovered them in Germany whither they had been brought from America by a citizen of the United States. They provide, therefore, a very interesting problem for an enterprising physical anthropologist. The cranial parts of their heads are uncommonly small; the determination of the exact size of their brains is a matter for Professor Karl Pearson, but from measurements made of their heads their brain weights may be estimated to range between 500 and 600 grammes, considerably less than half that of the average individual. Their heads have the typical microcephalic form. Their skins are rather deeply pigmented—a brown tint, but the pigment is peculiarly superficial in deposit and apparently not permanent. The sex in each case is probably female but the breasts are not developed; the palates are narrow and vaulted; the state of their dentitions shows them to be under 20 years of age. The colour of the iris scarcely matches the complexion of the skin and indicates a very close relationship with one of the lighter-haired European races. The hair is tied in a bush-like mass on the crown of the head, thus emphasising the peculiar smallness of the skull; the coiffure is one which we do not remember to have seen before in a native race. Their manners are polite and easy; they shake hands in the approved European fashion; in fact, it must be concluded that their native manners have been entirely replaced during their short stay in Germany. They speak no language and the only words which they seem to understand belong to the German form of speech. As will be seen from the brief account just given, these "representatives of an almost extinct native race" are of interest not only to students of anthropology but also to those of human nature.

PRESERVATIVES IN MILK.

We are glad to see that the Local Government Board is drawing the attention of the authorities who are responsible for the administration of the Sale of Food and Drugs Acts to the fact that the use of preservatives in milk is not a sine *quâ non* to the trade. The Board, in a circular recently issued, states that in certain boroughs in London and elsewhere in which samples of milk are systematically tested for preservatives, the presence of substances at any time of the year has been found to be exceptional and there is evidence to show that a very large number of milk vendors conduct their business without the use of antiseptics, even in those instances in which the milk comes long distances by rail. Proceedings instituted against vendors of milk containing preservatives have usually been taken under Section 6 of the Sale of Food and Drugs Act. Conviction has followed, it being held that when the purchaser who asks for milk is supplied with milk plus a preservative he does not receive an article of the nature, substance, and quality demanded and is prejudiced thereby. The Board suggests that analysts should record in their quarterly reports the number of samples of milk which have been examined with the view of ascertaining the presence of preservatives and should report at once to the council concerned the facts as to samples which proved on analysis to contain an added preservative. It is further suggested that proceedings should be taken in all cases where such a isappeared in five hours, and even 11·2 in a lake water, ar in excess of its requirements, had been resolved into hlorides and oxygen after a few days; in fact, the rapidity with which the hypochlorites broke up somewhat militated against their action. The resultant effect on London water after treatment with 0·44 part per 1,000,000 of "available chlorine" was a reduction of the oxygen consumed and an increase of the chlorides from 2·1 to 2·4 per 100,000.

International Notification of Infectious Diseases.

Dr. E. WALFORD (Cardiff) read a paper in which he dwelt on the futility of the existing practice of granting clean bills of health by our Consuls at foreign ports to homeward-bound vessels and the urgent need for an international organisation or bureau for the collection and circulation of information as to the existence of such diseases in ports in every land. At the Sanitary Conference held at Paris in 1903 the proposal, first made at the Vienna Congress in 1874, was formulated and strongly pressed by M. Barrère, who very properly insisted that it should be strictly international and wherever located, whether as he naturally desired at Paris or elsewhere, the local government should exercise no controlling influence over it. The British delegates, for reasons that Dr. Walford could not understand, had opposed it, maintaining that their Government had already all the information that they required or could expect to obtain by means of such an office, but facts coming under the almost daily observation of our port officers showed that such was far from being the case. The only valid objection was the loss and annoyance that might be inflicted by the authorities of countries which, like Spain, adhered to antiquated beliefs and practices by refusing admission to vessels coming from, say, Liverpool or Hamburg simply because the presence of a few cases of small-pox had been reported as existing in those towns, though instances of such hardship were not unknown at present, and official information of the presence of disease in any port would be a better ground than that obtained from newspaper paragraphs for the guidance of the health officers of other ports in the inspection of vessels coming from the infected port and therefore liable to have infection on board. Medical inspection of shipping on arrival was far from satisfactory; it was compulsory in respect of cholera, plague, and yellow fever only and in the smaller ports could not be said to exist. Many cases of disease, especially ambulant small-pox, were concealed or ignored, partly through the ignorance and want of diagnostic power of the masters and partly through wilful misapprehension of their responsibility. Deaths on the voyage were misdescribed or not reported and legal technicalities aided the deception. A ship arrived from Antwerp with a case of small-pox; she had a clean bill from the Consul and the captain declared that no illness had occurred *on the voyage*, which was technically correct, since she was a tramp whose voyage ended at Antwerp, whence she returned in ballast, the patient sickening after leaving that port. Sometimes the concealment admitted of no extenuation, as when a steamer having had several cases of small-pox on board in the course of her voyage from the East Indies landed five of them at a continental port where they were sent to the hospital and proceeded homewards with a clean bill of health endorsed by the British Consul. Fortunately, Dr. Walford had had unofficial information of her history and disregarding the clean bill he inspected the crew, with the result of finding two more cases, one convalescent but still infectious and the other in an early stage of the eruption. The Registrar-General, as Dr. Walford observed, did report certain outbreaks of infectious diseases in foreign countries, but the nearest approach to a universal notification is, we believe, to be found in the weekly bulletins of the German Imperial Board of Health in which the occurrence of outbreaks or the continued presence of any of the principal infectious diseases in the more important seaports in every part of the world are reported week by week, presumably from information afforded by the consular service.

SECTION OF CHEMISTRY, PHYSIOLOGY, AND BIOLOGY.

The Dust Nuisance.

Dr. PHILIP BOOBBYER (Nottingham) referred to the many evil results of dusty occupations and especially to the dust nuisance caused by motor vehicles on dusty roads. To mitigate this nuisance streets ought to be paved, he said, with smooth and cleanable material, the sweeping of dust from houses and shops into the street should be forbidden, and motor-cars in urban districts should not run at a higher speed than ten miles an hour.

Dr. A. BOSTOCK HILL (Warwickshire) protested against the horrible practice of putting refuse from the houses in the streets for collection. It was a practice as disgusting as it was dangerous to health. The motor had accentuated the dust nuisance.

Professor H. R. KENWOOD (London) admitted that the dust nuisance was a very great one, but it afflicted motorists more than anyone else. The remedy was improved scavenging and watering and better road makers.

Dr. S. RIDEAL (London) considered that the dirt nuisance would be greatly mitigated if the hedges were cut down so as to give a free course for the dissemination of the dust over the fields.

Dr. BOOBBYER, in replying to the discussion, said they had a painful picture from motorists of their sufferings for their misdeeds. He objected to the public also suffering. He objected to having his front garden rendered uninhabitable on a Sunday afternoon by "road hogs" tearing along the road at 30 miles an hour.

CONFERENCE OF MEDICAL OFFICERS OF HEALTH.

The Milk-supply.

Dr. H. RENNEY (Sunderland) referred to the pressing need of licensing dairies, cowsheds, and milkshops. In the shops in the poorer parts of towns it was not uncommon to find a number of small shops in one street often quite close together, the proprietors of which sold from a quart to a gallon of milk per day. These shops were usually small grocers or general dealers, and on inspecting them one found the milk contained in an earthenware vessel without any covering standing on the counter. He had seen it kept in a dirty zinc pail. In close proximity to the milk were pickles, kippered herrings, onions, flour, coals, perhaps an open tin of so-called preserved meat, and even paraffin oil. The floor was dirty with a layer of dried mud from the street, the walls and ceiling were sadly in need of cleansing, and the place usually communicated with the living room, where the stock of bread was being baked, to be afterwards sold in the shop. He proposed that:—

> In consideration of the insanitary condition of the great majority of dairies, cowsheds, and milkshops which thereby renders the milk supplied, under such insanitary conditions, unfit for human consumption and dangerous to the public health this section is of the opinion that legislation is desirable to secure the licensing of all dairies, cowsheds, and milkshops in lieu of registration as at present; and this section recommends the council of the institute to bring the proposition under the notice of the proper authorities.

Professor KENWOOD seconded the motion and suggested that the licences should be issued annually, which was accepted.

Dr. T. EUSTACE HILL (Darlington) considered that the enforcement of regulations in small districts was intimately bound up with the question of security of tenure of the official. Any dairyman could drive a coach-and-four through the model regulations of the Local Government Board.

Dr. H. E. ARMSTRONG (Newcastle-on-Tyne) believed that nothing short of a combination of sanitary authorities would solve the troubles between milk-sellers and consumers.

The motion was unanimously adopted.

SECTION OF ENGINEERING AND ARCHITECTURE.

Water-supply.

Dr. E. F. WILLOUGHBY (London) read a paper on Rural Water Supplies and urged that the county council should be empowered to authorise, or to compel, the formation of water boards for the supply of combined districts devoid of the means of supplying themselves.

We hope to be able to notice the interesting health exhibition which was held in connexion with the congress in a forthcoming issue.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF PRESIDENT.

A QUARTERLY meeting of the Council was held on July 12th, Mr. JOHN TWEEDY, the President, being in the chair.

The PRESIDENT reported the result of the recent election

THE ROYAL SANITARY INSTITUTE.

The twenty-third Congress of the Royal Sanitary Institute was held at Bristol from July 9th to 14th. The inaugural address was delivered by the President, Sir Edward Fry.

Section of Sanitary Science and Preventive Medicine.

The President of this section, Sir William J. Collins, being unavoidably absent, the address was read for him by Dr. R. Shingleton Smith. The gist of the address will be found in The Lancet of July 14th, p. 106.

The Spread of Diphtheria.

Dr. F. T. Bond (Gloucestershire) read a paper on the Spread of Diphtheria, especially in rural districts, and the difficulties that the medical officer of health encountered in his efforts to suppress the outbreaks. Dismissing as absolutely imaginary the notion of any connexion between "drains and diphtheria," he traced the story of rural epidemics from the alighting of some bacillus in the requisite stage of specificity on the mucous membrane of the congested tonsils or fauces of some child in perhaps an elevated and sanitary locality and the spread of the infection from child to child in the school until the outbreak assumed the proportions of an epidemic, according to the number of scholars and overcrowding of the school. What, he asked, should then be done? Closure was a clumsy and ineffective procedure and should rarely be resorted to. He told how in two adjoining villages with a combined school population of 470, after a long succession of notifications extending over several months, he obtained swabs from the throats and noses of all, with the result that more or less characteristic bacilli were found in the throat only in 16 cases, in the nose in 149, and in both in 230, while only 83 gave negative results. The preponderance of nasal infection was thus well seen. His subsequent procedure, to some extent experimental, was to have the noses and throats of all the children sprayed twice daily with a 10 per cent. solution of carbolic acid, with the result that in the next six months there were only five cases, three of them being in one house. But what was notifiable diphtheria? This was easy to answer 40 years ago, but they knew now that they might have well-marked membrane without diphtheria and diphtheria with no membrane. Only by bacterioscopy could the question of diagnosis be decided and it was doubtful whether, and from whom, the medical officer of health could look for remuneration. If he could pronounce the child to be suffering from diphtheria, as he might in even slight cases showing abundant growths of Klebs-Löffler bacilli, the sanitary authority—i.e., the ratepayers—could be called on; but the wider questions, the inspection of an entire school and subsequent preventive sprayings ought to be defrayed by the Board of Education. Then as regards antitoxins. Legally they could supply them gratuitously only to patients in the hospital, and to no other persons save by a pious fiction, charging it to the expenses of the hospital. A board of guardians might supply it to paupers, indoor or outdoor, and to them only. But an urban council without a hospital could not supply antitoxin at all.

Dr. J. Fletcher, representing the Metropolitan Asylums Board, as Dr. Bond did a county mainly agricultural, repudiated, too, any connexion of diphtheria with sewer gases or insanitary conditions. In his paper he confined his attention to the form known as post-scarlatinal, of which in the years 1896–1901 inclusive the Board had had in its hospitals an attack-rate of 4·4 per cent. among 81,245 scarlet fever patients, though owing to the extending use of antitoxin the fatality-rate had sunk from 43·3 per cent. in 1892 to 2·5. By far the greater proportion of these cases arose from infection from persons who, though without any clinical symptoms, harboured the bacilli in their throats or noses, "carriers" as they were called. Members of the staff might act thus, indeed he knew one case of a nurse suffering from mild pharyngeal diphtheria infecting 16 scarlatinal convalescents, six of whom died. He gave very fully details of a series of cases of post-scarlatinal diphtheria at Ham Green Hospital whence he concluded that the bacilli, however introduced, lurked in the mucous membrane of the nares and fauces of scarlatinal patients in a dormant state, springing into activity when, as was often the case between the fourth and sixth week of convalescence, a rhinorrhœa set in and swabs taken then from the nose would give almost pure cultures of Löffler's bacillus. On one occasion several patients had been admitted suffering from a certain amount of nasal catarrh but no notice was taken of the fact until the slow progress which they were making led to an examination of their nasal mucous, when out of 29 eleven showed Löffler's and six Hoffmann's bacilli, 12 being negative. These last were removed to the convalescent wards where one after another developed clinical symptoms of diphtheria and communicated it to others previously admitted until prophylactic doses of 2000 units of antitoxin promptly arrested the further progress of the disease.

Dr. Symes (Bristol), after ten years' experience of bacterial examination, attached little value to it. On one occasion 50 per cent. of the children attending a skin hospital showed diphtheria bacilli in their noses or throats and he would point out that they could never sterilise throats. In one place all cases of bacterial diphtheria were sent to hospital where nearly every one developed clinical diphtheria. It was well worth consideration that post-scarlatinal diphtheria was practically confined to hospitals and was almost unknown in private practice.

There followed a short passage of arms between Dr. Symes and Mr. Herbert Jones, who thought that it was superfluous to look for bacteria in the presence of clinical symptoms, while Dr. Symes believing that the bacteria without symptoms were harmless now employed examination in clinical cases only with a view to verify their specific character.

Sir Charles A. Cameron (Dublin) held that sore-throats were certainly connected with bad drains and might predispose to diphtheria. In Dublin with improved sewerage sore-throats had become much less prevalent, but the diminution of diphtheria was less marked in consequence of the overcrowding of the population, 37 per cent. of whom lived in single rooms, though fairly large ones.

Dr. E. M. Smith (York) raised an earnest protest against the growing belief in the harmlessness of sewer air and bad drains, against which there was a mass of evidence that could not be lightly ignored.

Prevention of the Growth of Algæ in Open Reservoirs.

Dr. S. Rideal, F.I.C. (London), read a paper on the Employment of Copper Sulphate and of Chlorine Evolved in the Electrolysis of Common Salt Solutions. The earliest experiments with the copper salt were made in America by Dr. G. T. Moore of the United States Agricultural Department, who found that the various orders of algæ were destroyed by copper sulphate in dilutions of from 1 in 8,000,000 parts to 1 in 1,000,000, but up to last year its employment had not been sanctioned by the Board of Health of Massachusetts. Mr. Reid, engineer to the Gloucester waterworks, had used it in the proportion of 1 in 3,000,000 with most satisfactory results, a single application in early spring inhibiting the growth of the chara for the remainder of the season. For 24 hours after the addition of the sulphate the water gave off bubbles of a strongly fishy odour but was then bright and clear and after another 24 hours not a trace of copper was discoverable by the cyanide test, the metal having combined with the organic sediment, and the filters required far less cleaning than previously. The only objection was the popular prejudice against the employment of copper in any form in connexion with articles of food or drink and though in this case the danger was imaginary it provided an argument in favour of the substitution of the alternative of nascent chlorine. Chlorine evolved by the electrolysis of sea water or of solutions of common salt had proved very successful in the purification of sewage effluents and Dr. Rideal believed that it would be found equally applicable to potable waters. It was true that a special electrolytic plant was required but the Digby hypochlorite apparatus could be installed at a cost not exceeding £100 and the requisite power was available wherever pumping operations were carried on, while the material, common salt, was considerably cheaper than copper sulphate at £28 per ton, though this at 1 part per 1,000,000 worked out at no more than 2*s.* 6*d.* for each 1,000,000 gallons of water treated. Chlorine was most effective with algæ of the convervoid type; dermids and diatoms were more resistant and entomostraca were not killed even by the largest quantities required by the algæ or permissible in potable waters. The "available chlorine" consumed by these rarely exceeded 0·5 part per 1,000,000, and by lake waters 1 or 1·2, but these quantities “open grate” in the sense intended or as suitable where an open fire is required.

In the matter of smoke production the results afforded by the anthracite stoves are remarkable in comparison with those of stoves consuming bituminous coal, the smoke produced by the former kind being practically *nil* and imperceptible to ordinary observation.

If further efforts should succeed in securing with these results increased heat production combined with economy in fuel consumption a valuable achievement will have been accomplished, and, in the opinion of the committee, the problem is well worthy the attention of inventors and manufacturers.

The following are descriptions of the grates tested arranged in alphabetical order according to the name of the manufacturer or patentee. The descriptions are supplied by the manufacturers but their inclusion in this report is not to be taken as implying confirmation by the examiners of statements therein contained. The results stated at the foot of each description have been added by the examiners and indicate the daily average consumption of coal, the average rise of temperature, and the emission of smoke.

The Coalbrookdale Company.—The “Kyrle” open fireplace.—This fireplace is constructed to burn anthracite. The fire space is lined entirely with fire brick, the bottom being solid. The draught is through the front bars and through the narrow horizontal opening at the bottom of the fire-brick back into the back flue. Passing upwards, the external air is drawn in over the top of the fire, through another narrow slit between the back brick and a deflector brick fixed immediately above it at an angle. There are no extraordinary flues, dampers, valves, or loose doors to get out of order.

Coal, 39·1 lb. Temperature, 5·4° F. Smoke, 0·15.

The Downdraught Fireplace Company.—The “Tiffin” interior.—A downdraught flue is carried up from the bottom of the fire on either side behind the usual firebrick cheeks. These flues are made to converge to a common centre immediately above the usual adjustable canopy and thence a single flue is carried round the oven or hot chamber, finally debouching behind the same into the chimney. On the under side of the hot chamber, where the converging flues meet, a sliding soot-door is fitted, reached for cleaning purposes by removing the adjustable canopy in the ordinary way. The downdraught flue is regulated by a damper and this is actuated by a rod passing through the front of the stove. When the damper is drawn an induced draught creates a downward suction through the fire by which the smoke and heated gases are consumed.

Coal, 36·13 lb. Temperature, 4·7° F Smoke, 0·09.

Messrs. Eames and Keys.—Cleaver's patent “cascade” fire.—An open fire for burning anthracite coal broken into small fragments; it has an automatic coal-supply whereby the fuel is replenished as it is consumed, requiring no attention or stoking. By means of a damper operated by a small handle the heat may be regulated at will or the fire extinguished.

Coal, 24·27 lb. Temperature, 3·1° F. Smoke, 0·04.

Messrs. Pither's Stove.—The stove is composed of an inner and outer casing of cast malleable iron, the area in the top part being a reservoir for coal, from which a funnel-shaped feed leads to the top of the fire, reducing the depth of fire to two and a half inches. The bars are louvre turned inwards to prevent coal falling out. The bottom is solid and arranged to tip when it is required to renew the fire.

Coal, 27·53 lb. Temperature, 8·2° F. Smoke, 0·09.

The Sinclair Iron Company.—The “Roseneath” open grate.—Combustion is regulated by a sliding shutter adjustable to suit the draught of chimneys and the temperature of the room.

Coal, 35·43 lb. Temperature, 2·1° F. Smoke, 0·02.

Table Showing the Results of Tests on Five Grates burning Anthracite Coal.

Names of firms.	Room.	Chimney.	Amount of coal (– cinders + half wood) in pounds.	Ashes in pounds.	Stoking.	Temperatures.				Smoke.
						[*] I.	[*] II.	Difference.	[*] III.	
Coalbrookdale Co., Limited	5B	L	39·1	7·3	4·6	46 8	52 2	5 4	73·9	0·15
Downdraught Fireplace Co.	7	O	36·13	10·0	3·6	,,	51·5	4·7	72·7	0·09
Eames and Keys ...	14	Y	24 27	2·8	—	,,	49 9	3 1	63 5	0·04
Pither	20	A	27·53	9·0	1·0	,,	55 0	8 2	68 1	0·09
Sinclair and Co. ...	21	B	35 43	10·0	4·0	,,	48·9	2·1	67·0	0·02

Smoke.—Practically no smoke whatever. The fractional rise in the chart is the effect of the ordinary coal for lighting purposes.

[*] These numbers refer to the thermometers—I., in corridor; II., five feet in front of fire; III., 15 feet from fire.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 19th, 1828.

IDIOSYNCRASIES.

THAT curious, sympathetic wonder-working person, Sir Kenelm Digby, is, perhaps, the greatest detailer of singular fancies relating to antipathies and sympathies. He narrates the dire effects of flowers upon certain people, even to fainting and dying. So obnoxious was a rose to the Lady Heneage, that she had her cheeks blistered, says Sir Kenelm, by laying a rose upon it while she was asleep. It is even stated that Cardinal Caraffa, and a noble Venetian, one of the Barbarage, were confined to their palaces, during the rose season, for fear of their lives.[*] Johannes e Querceto, a Parisian, and Secretary to Francis I., King of France, was forced to stop his nostrils with bread when there were any *apples* at table; and so offensive was the smell to him, that if an apple had been held near him he would fall a bleeding. (*Schenck. Obs. Med.*)—I saw a noble countess, says Horstius, who tasted of some udder of beef, and had her lips suddenly swelled thereby; observing that I took notice of it, told me that she had no dislike to that kind of dish, but as often as she did eat of it she was troubled in this manner, the cause of which she was utterly ignorant of. Bruverinus knew a girl, 16 years of age, who, up to that time, had lived entirely on milk, and could not bear the smell of bread; the smallest particle of which she would discover by the smell. An antipathy to pork is very common. Shenckius tells us of one who would immediately swoon as often as a pig was set before him, even though it be inclosed in paste; he falls down as one that is dead, nor doth he return to himself till the pig is taken away from the table. Marshal Albert fainted away whenever he saw the head of a boar.

The foregoing extracts are taken from a very ingenious and humorous paper in the last number of Brande's Quarterly Journal, by Mr. Wadd, entitled, “Comments on Corpulency.” To the unaccountable anomalies which he has mentioned, many others might be added from various authorities, and not a few from our own personal observation. In fact, there is not a single function of the body which does not frequently afford an instance of these irregularities. The feel of velvet produces nausea and syncope with some persons: of this the family of the writer presents a remarkable case. Gaubius speaks of a man who could not withstand the emanations from a female; and Rousseau mentions a young man who was afflicted with retention of urine, on hearing the bag-pipe. Mr. Wadd has alluded to a case, in which the odour of ipecacuanha produced violent effects; nausea and sickness. We have a highly respected friend of extensive practice in the country, who, if he chance to enter a room where ipecacuanha has been used, is suddenly seized with violent sneezing, watering from the eyes, and coughing. A short time since we were in attendance upon a lady, who is invariably seized with the most violent itching and tingling in the skin, if the smallest quantity of opium be administered.

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[*] Not long since the English newspapers announced that a certain noble duke was confined to his room with the *hay-fever*, produced by the smell of new-made hay! “*Die of a rose, in aromatic pain,*” says *Pope.*

MEDICINE AND THE LAW.

Notification in Case of Measles.

Is measles a dangerous infectious disorder within the meaning of Sections 120 to 130 of the Public Health Act, 1875? Although the disease is not included in the list mentioned in the Infectious Diseases (Notification) Act, 1889, there seems no reason why it should not be so considered, if it is in fact a dangerous infectious disorder. Section 6 of the Act of 1889 enacts that in this Act the expression “infectious diseases to which this Act applies” means any of the following diseases: namely, small-pox, cholera, diphtheria, membranous croup, erysipelas, the of members of the Council, as published in THE LANCET of July 14th, and Mr. Henry Morris, Mr. F. Richardson Cross, and Mr. George Arthur Wright were introduced; they made declarations in the form of the oath prescribed by the charter of 1800 and took their seats as members of the Council.

On the recommendation of the Museum Committee it was resolved to print vol. iii. of the second edition of the catalogue of the physiological series of Comparative Anatomy.

A report was received from the Board of Examiners in dental surgery recommending alterations in the regulations for the Licence. The consideration of the report was postponed to the next meeting of the Council.

The PRESIDENT reported that after the election of members of the Council on July 5th the Fellows' subscription dinner was held in the library and that 65 Fellows were present.

A letter was read from the PRESIDENT of the Pharmaceutical Society thanking the Council for the practical sympathy extended to the society in connexion with the Poisons and Pharmacy Bill.

A letter was read from Mr. JOHN LANGTON expressing appreciation of the kind message sent to him by the Council on the expiration of his official connexion with the College.

Mr J. WARD COUSINS moved and Mr. RICKMAN J. GODLEE seconded:—

That in the opinion of the Council of the Royal College of Surgeons of England it is essential for the efficient working of the Midwives Act, that adequate provision be made to secure just remuneration for professional services rendered by medical men when called into attendance by midwives practising under the Act.

The motion was carried.

Mr. HENRY MORRIS was elected President and Mr. EDMUND OWEN and Mr. GODLEE were appointed Vice-Presidents.

The following professors and lecturers were appointed for the ensuing Collegiate year. Hunterian professors: William Sampson Handley, John William Thomson Walker, John Howell Evans, William Wright, and Cecil Fowler Beadle. Arris and Gale lecturers: John Faulkner Dobson and Bertram Louis Abrahams. Erasmus Wilson lecturers: Willmott Henderson Evans, Reginald Cheyne Elmslie, and Kenneth Weldon Goadby.

The next meeting of the Council will be held on July 26th.

REPORT OF TESTS OF GRATES SUBMITTED FOR THE CONSUMPTION OF ANTHRACITE COAL.

[THIS REPORT IS SUPPLIED BY THE COAL SMOKE ABATEMENT SOCIETY.]

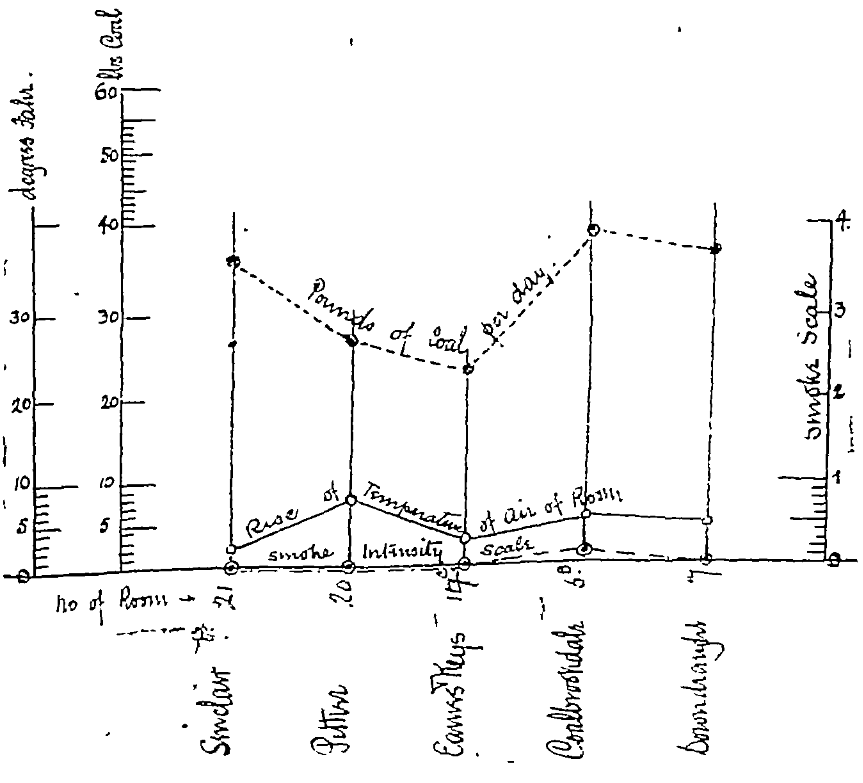
FIVE grates constructed for the consumption of anthracite coal were submitted for test—viz., by the Coalbrookdale Company, Limited, the Downdraught Company, Messrs. Eames and Keys, the Sinclair Company, Limited, and Messrs. Pither. These grates were tested on Jan. 2nd, 3rd, 4th, and 5th, 1906, by the same staff and under almost identical conditions and methods as described in our previous report published in THE LANCET of May 19th, 1906. The fires on one night were *allowed to burn themselves* out, which increased the amount of coal burnt as compared with the fires in previous tests.

The grate submitted by the Coalbrookdale Company for this test was identical with that tested with bituminous coal (Coalbrookdale Company).

All of these grates were open fireplaces with the exception of the grate submitted by Messrs. Pither, which, on the contrary, was almost closed, except for a small opening (1 ft. 1 in. × 6½ in.) in the lower portion of the front. The four other grates were entirely open.

The fires were started with paper or chips, wood, and a small quantity of bituminous coal. The heat given off by the entirely open grates was in every case small in proportion to the amount of coal consumed. The greatest average temperature from these grates was from that of the Coalbrookdale Company, registering 5·4° F. above the temperature in the corridor, and incurring an average consumption of 39·1 pounds of coal daily.

Messrs. Pither's stove produced an average temperature of 8·2° F. above corridor temperature, with an average daily consumption of 27 53 pounds of coal. The examiners, however, consider that this stove cannot fairly be accepted as an



therefore be some increased risk of pollution on the growth of the town in that direction." Although the sewers and drains within a radius of a quarter of a mile of these wells have been, it is said, carefully constructed and are reported to be under careful supervision we can quite understand the misgivings of Dr. Richards upon the whole question, more particularly as it is upon these wells that Croydon is dependent for the bulk of its water-supply. Filtration of this supply would certainly seem to be indicated. Dr. Richards suggests consideration by the Local Government Board of the whole question but possibly that Board might take the view that the Royal Commission on Sewage Disposal has indicated a way out of the difficulty by the appointment of Rivers Boards, which boards should have control of sewage disposal and water-supply in their districts. During 1905 a nurse was admitted into the isolation hospital under the following circumstances. Her mistress who was suffering from Malta fever left Malta with the nurse on July 2nd, reaching London on July 10th. Shortly after arrival the mistress suffered from a relapse and on August 1st the nurse who had remained with her mistress was attacked with an illness resembling enteric fever. But as the symptoms were somewhat anomalous a specimen of her blood was examined to ascertain whether it would agglutinate a culture of micrococcus Melitensis and a positive result was obtained, the subsequent course of the case confirming the diagnosis of Malta fever. The case, as Dr. Richards observes, raises some interesting speculations. Reporting to the education authority on March 23rd, 1906, Dr. Richards states that at that time there were no less than 180 children excluded from school on account of ringworm and he sets forth various reasons as to why the council should undertake the treatment of this condition. He has also, in his capacity as medical officer to the education authority, obtained data as regards the physical condition of school children and for purposes of comparison he has examined the boys in the Grammar School and the girls in the High School. The whole report as regards schools shows what a large tax the work must make upon the time of a medical officer of health and it accentuates the importance of assistance being provided for that officer.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8322 births and 3556 deaths were registered during the week ending July 14th. The annual rate of mortality in these towns, which had been 12·4 and 12·3 in the two preceding weeks, further declined last week to 11·7 per 1000, and was the lowest rate recorded in any week of the present year. During the past four weeks the death-rate in these towns has averaged 12·4 per 1000, while in London the average rate during the same period has been as low as 12·3 per 1000. The lowest death-rates last week in the 76 towns were 4·9 in Newport (Mon.), 5·6 in East Ham, 6·2 in Hastings, 6·8 in Grimsby, and 6·9 in Bournemouth; the highest rates were 17·2 in St. Helens and in Burnley, 19·8 in Huddersfield, and 20·3 in Rochdale. The 3556 deaths in the 76 towns last week were 165 below the numbers in the previous week, and included 351 that were attributed to the principal epidemic diseases, against 372 and 406 in the two preceding weeks. of these, 113 resulted from diarrhœa, 97 from measles, 59 from whooping-cough, 39 from diphtheria, 27 from "fever" (principally enteric), 25 from scarlet fever, and one from small-pox. The deaths from these principal epidemic diseases were equal to an annual rate of 1·2 per 1000 in the 76 towns and to 1·0 per 1000 in London. No death from any of these diseases was recorded last week in Rhondda, Southampton, Stockport, Walsall, or in 12 other smaller towns, while they caused death-rates exceeding 2·5 per 1000 in West Ham, Manchester, Burnley, Preston, Rotherham, and Middlesbrough. The highest death-rates from measles occurred in Manchester, Burnley, Huddersfield, and Halifax; from whooping-cough in Rotherham, Middlesbrough, and Sunderland; and from diarrhœa in West Ham, Norwich, Bootle, and Preston. The 39 fatal cases of diphtheria included nine in London, four in Liverpool, and three in Bristol; scarlet fever caused six deaths in London, four in Sheffield, and two each in Birmingham and Rotherham; while of the 27 deaths from "fever" four belonged to London, four to West Ham, and two to Oldham. The fatal case of small-pox was registered in Hull. The four cases of small-pox under treatment in the Metropolitan Asylums hospitals at the end of last week showed a further decline from recent weekly numbers, and no new case was admitted during the week. The number of scarlet fever patients under treatment in these hospitals and in the London Fever Hospital on Saturday, July 14th, was 2840, or 73 more than the number on the previous Saturday; 406 new cases were admitted during the week, against 366 and 377 in the two preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had continuously declined in the 12 preceding weeks from 399 to 118, were 119 last week, but were 17 below the corrected average for the corresponding week of the four years 1902–05. The causes of 33, or 0·9 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. In West Ham, Portsmouth, Bristol, Manchester, Salford, Bradford, Leeds, Sheffield, and in 42 other smaller towns the causes of all the deaths were duly certified; only one uncertified death was registered in London and in each of 21 other smaller towns; while there were two such cases in Sunderland and three each in Leicester, Liverpool, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·0, 14·5, and 15·3 per 1000 in the three preceding weeks, declined again to 14·3 per 1000 in the week ending July 14th, but was 2·6 per 1000 in excess of the rate in the 76 large English towns. The rates in the eight Scotch towns last week ranged from 10·2 in Paisley and 10·7 in Leith to 15·5 in Glasgow and in Dundee and 17·0 in Greenock. The 491 deaths in the eight towns showed a decrease of 33 from the number registered in the preceding week, and included 22 which were referred to diarrhœa, 17 to whooping-cough, 12 to measles, seven to "fever," three to diphtheria, two to scarlet fever, and not one to small-pox. In all, 63 deaths resulted from these principal epidemic diseases last week, against 59 and 50 in the two preceding weeks; they were equal to an annual rate of 1·8 per 1000, which was 0·6 above the average rate during the week from the same diseases in the 76 English towns. The 22 deaths attributed to diarrhœa in the Scotch towns showed a slight increase upon the numbers in the two preceding weeks and included 14 in Glasgow, four in Dundee, and three in Aberdeen. The fatal cases of whooping-cough, which had been nine and eight in the two previous weeks, rose last wek to 17, of which nine occurred in Glasgow, five in Aberdeen, and two in Leith. The 12 deaths from measles were slightly in excess of the numbers in the two preceding weeks, and included seven in Edinburgh and five in Glasgow. All the seven deaths from "fever," of which four were returned as cerebro-spinal fever, were recorded in Glasgow, as were also two of the three fatal cases of diphtheria. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had declined in the five preceding weeks from 95 to 52, rose again last week to 59, but were six below the number returned in the corresponding week of last year. The causes of 28, or 5·7 per cent., of the deaths registered in the eight towns last week were not certified, the proportion of uncertified deaths in the 76 large English towns during the same week being only 0·9 per cent.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 16·4 and 16·9 per 1000 in the two preceding weeks, further rose to 16·7 per 1000 during the week ending July 14th. During the past four weeks the death-rate has averaged 18·1 per 1000, the rates during the same period being 12·3 in London and 14·1 in Edinburgh. The 136 deaths of Dublin residents registered during the week under notice were 13 in excess of the number in the preceding week, and included 12 which were referred to the principal epidemic diseases, against three, five, and four in the three preceding weeks; of these, six resulted from whooping-cough, three from diarrhœa, two from "fever," and one from measles. These 12 deaths were equal to an annual rate of 1·7 per 1000, the death-rates last week from the principal epidemic diseases being 1·0 in London and disease known as scarlatina or scarlet fever, and the fevers known by any of the following names—typhus, typhoid, enteric, relapsing, continued, or puerperal—and includes, as respects any particular district, any infectious disease to which this Act has been applied by the local authority of the district in manner provided by this Act. Section 7 of the same Act enacts that the local authority of any district to which this Act extends may from time to time by a resolution passed at a meeting of such authority where the like special notice of the meeting and of the intention to propose the motion has been given, as is required in the case of a meeting held for adopting this Act, order that this Act shall apply in its district to any infectious disease other than a disease specifically mentioned in this Act.

The control of measles is a subject which has troubled many local authorities and the results of notification and other means have not always been such as to encourage them to spend much money on taking additional measures. The question is one of great importance, as statistics show that no less than 13,000 deaths occur every year in England and Wales from this disease. The disease is generally looked upon as one of the inevitable ailments of infancy and many mothers think that the sooner their children have it so much the better, for then it will be over and they will no longer be liable to catch it. It seems, however, that as children get older the fatal nature of the disease becomes less marked. It is during their second year that the disease proves most fatal to children, "whilst the incidence of the attack is highest during the third, fourth, and fifth years of life." Between 90 and 95 per cent. of the deaths are among children under five years of age. This may, however, be due to the fact that by the time children in this country attain the age of five years the great majority of them have already suffered from the disease. Deaths from measles occur almost wholly among poor people. Thus children of the richer classes are better looked after, the disease is noticed sooner, and a medical man is called in. The children are isolated and properly nursed, so that serious results less often ensue from the illness. Whether it is possible to check epidemics or not is doubtful, but at present it would seem that they occur in most districts every two or three years and there can be no reason why their frequency should not be reduced. The disease is undoubtedly an infectious one and is thus probably preventable. Notification is one of the remedies that is frequently suggested and it has been tried by several local authorities. As we have seen, measles is not one of the diseases mentioned in the Infectious Diseases (Notification) Act, but it can be included if the local authority desires and the Local Government Board approves. It is notifiable in about 60 towns in England and Wales but in nearly as many other towns it has been tried for a time and discontinued. The principal difficulty in the way of notification is due to the fact that in very many cases medical men are not called in, especially in the earlier stages, when it is believed that the disease is most infectious. Another objection is that the expense is considerable and it is impossible, for want of room, to isolate the patients. One reason alleged for the frequency of epidemics is the existence of infant schools. Many medical officers of health are of opinion that the attendance at school of young children under five years of age does far more harm than good. It is among such children that the epidemic spreads most rapidly and the fact that the age limit for school children has been reduced is given as one reason why the recent efforts to reduce the mortality from measles have proved so fruitless. There are over 600,000 children under the age of five years attending elementary schools. It is among these children that the greatest incidence of attack occurs and it is when under five that nearly all the deaths occur. If it is correct that fatalities are fewer after five years of age then every attempt should be made to prevent young children from contracting the disease. The closing of schools for children under five years of age would tend to produce this effect as it would prevent them from mixing together and so spreading contagion. The best remedy at present to minimise the effect of the disease is to teach the mothers how to treat their children when ill with measles and to induce them to keep their other children at home. This has proved very successful in rural districts but it is not such an easy matter in towns and in tenement houses as the children meet and play with one another. In some districts the schools are closed during epidemics, and in others not at all.

The Jury of Matrons.

In continuation of the note in THE LANCET of July 14th, p. 118, upon the case of the woman who after being sentenced to death for murder at the recent Bodmin summer assizes pleaded pregnancy some further historical points of interest are suggested. In the olden time the mere man and even the man of medicine were supposed to be very ignorant concerning the facts of pregnancy, which were deemed to be the province of matrons, or the facts of childbirth which were presided over by midwives; the aid of the surgeon was only sought in cases of difficult or of mismanaged labours. The frequency with which women condemned at the Old Bailey or at the assizes "pleaded their belly" in pre-nineteenth century times is seemingly very remarkable until it is remembered that the records refer to "the old hanging days" when to commit any felony was a capital offence. There can be no doubt that sisterly sympathy with the accused and antipathy to the awful sentence, whether immediately or remotely executed, influenced the actual verdict of the jury of matrons much more than did the physical signs which they found. It will be remembered that the poet Gay in his *Beggar's Opera*, published in 1727, makes Mr. Peachum say of one of his associates, "She pleads her belly at worst," in stay of execution and in hope of reprieve and commutation of the capital sentence. Among the contemporary records of criminal proceedings it is not very uncommon to read that the plea of pregnancy—for that was what it amounted to in reality—was made a second time when the condemned woman again appeared in court; the fact, of course, does not speak very highly either for the expedition of justice or for the morality of contemporary remand homes. The jury of matrons was abolished in Ireland by the Juries Procedure Act, 1876. In 1882 the Parliamentary Bills Committee of the British Medical Association made representations to the Crown against empanelling such juries.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

County Borough of Croydon.—Dr. H. Meredith Richards reports that the Croydon Corporation Bill, 1905, has now become law. This measure confers upon the corporation certain extended facilities as regards drainage and it also enables the medical officer of health to enter any public elementary school within the borough at all reasonable times and to examine the scholars attending such school. It also insures that the occupier of any inhabited building wherein there is, or has been recently, any person suffering from a dangerous infectious disease shall, upon the request of the medical officer of health, furnish to him such information as he may reasonably require. Dr. Richards is clearly somewhat anxious as regards a large portion of the water-supply of Croydon, the whole of which is derived, save for a certain part furnished by the London Water Board, from wells in the chalk. Some of this chalk is hereabouts covered with tertiary formations, while other parts of it are uncovered, and it would seem from Dr. Richards's observations that the chalk in the vicinity of Croydon is known to be fissured in places. As he observes, the question resolves itself into this: Can unpurified sewage gain access to the wells? There have been two epidemics of enteric fever in Croydon, one in 1853 and another in 1875, and in neither of these cases could the influence of the water be altogether put aside. In consequence of the last outbreak the wells were lined for a greater depth than was the case formerly but Dr. Richards fears that it is doubtful whether the record of the last 30 years can long be maintained. One of the wells has actually been abandoned in consequence of the contamination of its water and "the connexion between all four wells is so intimate that there is no guarantee that the remaining wells may not suffer a similar misfortune, especially as the area from which the wells derive their supply is becoming more and more thickly populated. The reality of this risk is emphasised by the fact that bacteriological examination already indicates occasional departures from the high standard of purity which should be maintained by wells in the chalk. A fissure is known to exist from Surrey-street (where there are several wells) to the Addington Hills and there must

1·4 in Edinburgh. The six fatal cases of whooping-cough exceeded the number recorded in any previous week of the year, the deaths from this cause in the three preceding weeks being two, one, and four. The 136 deaths from all causes in Dublin last week included 25 of infants under one year of age and 32 of persons aged upwards of 60 years. Four inquest cases and two deaths from violence were registered. The deaths occurring in public institutions numbered 61, or nearly 45 per cent., of the total deaths; in London the proportion was 42 per cent. The causes of two, or nearly 1·5 per cent., of the deaths registered in Dublin last week were not certified either by a registered medical practitioner or by a coroner; in London only one of the 1072 deaths was uncertified, while in Edinburgh the proportion was 11·6 per cent.

VITAL STATISTICS OF LONDON DURING JUNE, 1906.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 7·6 per 1000 of the population, estimated at 4,721,217 persons in the middle of the year. In the three preceding months the rates had been 5·7, 5·9, and 6·4 per 1000 respectively. The lowest rates last month were recorded in Kensington, Hampstead, Stoke Newington, Holborn, Poplar, and Lewisham; and the highest rates in Finsbury, the City of London, Shoreditch, Stepney, Bermondsey, and Greenwich. Ten cases of small-pox were notified last month, against seven, one, and six in the three preceding months; of these ten cases, six belonged to Camberwell, two to Hackney, and one each to Paddington and Bethnal Green. The Metropolitan Asylums hospitals contained 11 small-pox patients at the end of last month, against ten, six, and five at the end of the three preceding months. The prevalence of scarlet fever showed a slight excess in June as compared with the previous months of this year; this disease was proportionally most prevalent in the City of London and in the boroughs of Hammersmith, Shoreditch, Stepney, Bermondsey, Battersea, and Greenwich. The Metropolitan Asylums hospitals contained 2705 scarlet fever patients at the end of last month, against 2353, 2192, and 2462 at the end of the three preceding months; the weekly admissions averaged 354, against 238, 282, and 321 in the three preceding months. Diphtheria was considerably more prevalent than in the preceding month; the greatest proportional prevalence of this disease was recorded in Fulham, Finsbury, Stepney, Bermondsey, and Greenwich. The number of diphtheria patients in the Metropolitan Asylums hospitals, which had been 924, 860, and 760 at the end of the three preceding months, had risen again to 782 at the end of last month; the weekly admissions averaged 114, against 111, 103, and 98 in the three preceding months. The prevalence of enteric fever was greater last month than in any other recent month; amongst the various metropolitan boroughs this disease was proportionally most prevalent in Chelsea, Islington, Finsbury, Bethnal Green, Southwark, and Lambeth. There were 93 enteric fever patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 65, 56, and 41 at the end of the three preceding months; the weekly admissions averaged 20, against 11, 11, and 12 in the three preceding months. Erysipelas was proportionally most prevalent in Hammersmith, Chelsea, St. Pancras, Stepney, Bermondsey, and Wandsworth. The 17 cases of puerperal fever included five belonging to Islington and three each to Finsbury and Lambeth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ending June 30th 4305 deaths of persons belonging to London were registered, equal to an annual rate of 11·9 per 1000 of the population; in the three preceding months the rates had been 16·2, 17·0, and 13·8 per 1000. The death-rates last month ranged from 8·0 in Hampstead, 8·2 in Woolwich, 8·4 in Lewisham, 9·1 in Stoke Newington, and 9·4 in Hackney and Battersea, to 14·7 in Shoreditch and in Bethnal Green, 15·5 in Bermondsey, 15·9 in Holborn and in the City of London, 16·4 in Chelsea, and 17·4 in Finsbury. The 4305 deaths from all causes in London last month included 436 which were referred to the principal infectious diseases; of these, 198 resulted from measles, 39 from scarlet fever, 34 from diphtheria, 77 from whooping-cough, 20 from enteric fever, and 68 from diarrhœa. No death from any of these diseases was recorded in the City of London; among the metropolitan boroughs they caused the lowest rates in the City of Westminster, Hampstead, Stoke Newington, Lewisham, and Woolwich; and the highest rates in St. Pancras, Holborn, Finsbury, Shoreditch, Bethnal Green, Poplar, and Bermondsey. The 198 deaths from measles were slightly above the corrected average number in the corresponding periods of the four preceding years; this disease was proportionally most fatal in St. Pancras, Holborn, Finsbury, Shoreditch, Poplar, and Bermondsey. The 39 fatal cases of scarlet fever were seven in excess of the corrected average number; the greatest proportional mortality from this disease occurred in Paddington, Hammersmith, Chelsea, St. Pancras, Bethnal Green, Stepney, Bermondsey, and Lambeth. The 34 deaths from diphtheria were 11 fewer than the average for the corresponding periods of the four preceding years; among the various metropolitan boroughs diphtheria was proportionally most fatal in the City of Westminster, St. Marylebone, Finsbury, Stepney, and Lambeth. The 77 fatal cases of whooping-cough showed a decline of 44 from the corrected average number; the highest death-rates from this disease were recorded in Holborn, Finsbury, Shoreditch, Bethnal Green, Bermondsey, Battersea, and Wandsworth. The 20 deaths from "fever" were slightly in excess of the average for the corresponding periods of the four preceding years; of these 20 deaths three belonged to Islington, two each to St. Pancras and Southwark, and one each to 13 other boroughs. The 68 fatal cases of diarrhœa were considerably below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Paddington, Fulham, Shoreditch, Southwark, Bermondsey, Camberwell, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was nearly 16 per cent. below the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 85 per 1000. The lowest rates of infant mortality were recorded in Paddington, St. Marylebone, the City of London, Wandsworth, Lewisham, and Woolwich; and the highest rates in Kensington, Chelsea, the City of Westminster, St. Pancras, Holborn, and Shoreditch.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: J. Ll. Thomas to the *Pembroke*; W. Hackett to the *President*, for three months' course at West London Hospital. Staff Surgeons: E. G. E. O'Leary to the *Thetis*, on recommissioning; M. J. Smith and H. W. B. Shewell to the *President*, for three months' course at West London Hospital. Surgeons: A. I. Sheldon to the *Astræa*, and on recommissioning; P. G. Williams to the *Alacrity*, and on recommissioning; W. G. M. Anderson to the *Impregnable*, for the *Inconstant*; T. B. Shaw to the Royal Naval Rendezvous, lent; R. R. Horley to the *President*, for three months' course at West London Hospital; B. Pick, lent to Portland Hospital; J. J. H. Rooney to the *Blake*; W. Bastian to the *President*, for three months' course at West London Hospital; J. G. Watt to the *Sirius*; and P. L. Crosbie and J. H. le B. Page to the *Vivid*.

In accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Surgeon George Edward Glynn has been placed on the Retired List (dated July 5th, 1906); Surgeon Frederick Francis Mahon has been promoted to the rank of Staff Surgeon in His Majesty's Fleet (dated July 11th, 1906).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel John M. Nicolls retires on retired pay (dated July 14th, 1906). Captain Arthur E. Milner to be Major (dated April 28th, 1906).

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1906.

(Specially compiled for THE LANCET.*)*

CITIES AND BOROUGHS.	Estimated population in the middle of 1906.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON...	4,721,217	10	1609	555	—	165	2	17	408	—	2756	7·6	—	198	39	34	77	—	20	—	68	436	1·2	4306	11·9	85
West Districts.																										
Paddington	148,913	1	44	9	—	1	1	—	12	—	68	6·0	—	4	2	1	1	—	—	—	3	11	1·0	117	10·2	89
Kensington	180,952	—	39	8	—	5	—	—	16	—	68	4·9	—	11	1	1	1	—	—	—	1	15	1·1	161	11·8	126
Hammersmith	120,679	—	51	15	—	1	—	—	15	—	82	8·8	—	3	2	—	—	—	1	—	2	8	0·9	127	13·7	94
Fulham	161,985	—	31	29	—	2	—	—	13	—	75	6·0	—	4	2	—	3	—	1	—	7	17	1·4	124	10·0	85
Chelsea	74,672	—	18	6	—	4	—	1	9	—	38	6·6	—	4	2	—	—	—	—	—	1	7	1·2	94	16·4	167
City of Westminster	173,905	—	61	20	—	7	—	—	9	—	97	7·3	—	2	1	2	1	—	1	—	3	10	0·7	174	13·0	116
North Districts.																										
St. Marylebone	128,580	—	35	12	—	4	—	1	14	—	66	6·7	—	7	1	2	1	—	—	—	—	11	1·1	121	12·3	64
Hampstead	89,633	—	22	2	—	3	—	—	4	—	31	4·5	—	—	—	—	1	—	—	—	1	2	0·3	65	8·0	75
St. Pancras	236,455	—	84	25	—	6	—	1	30	—	145	8·0	—	18	4	2	4	—	2	—	3	33	1·8	248	13·7	107
Islington	344,937	—	96	37	—	22	—	5	14	—	174	6·6	—	11	2	3	4	—	3	—	1	24	0·9	297	11·2	86
Stoke Newington	53,217	—	6	4	—	1	—	—	2	—	13	3·2	—	1	—	—	—	—	—	—	—	1	0·2	37	9·1	77
Hackney	230,721	2	68	28	—	6	—	—	21	—	125	7·1	—	8	—	2	1	—	1	—	2	14	0·8	167	9·4	76
Central Districts.																										
Holborn	55,805	—	18	1	—	—	—	—	1	—	20	4·7	—	10	—	—	2	—	—	—	—	12	2·8	68	16·9	105
Finsbury	97,466	—	37	32	—	12	—	3	10	—	94	12·6	—	19	—	2	3	—	—	—	1	25	3·3	130	17·4	74
City of London	21,367	—	21	—	—	—	—	—	2	—	23	14·0	—	—	—	—	—	—	—	—	—	—	—	26	15·9	40
East Districts.																										
Shoreditch	116,103	—	64	10	—	6	—	1	8	—	89	10·0	—	13	—	1	4	—	1	—	4	23	2·6	131	14·7	131
Bethnal Green	130,609	1	52	16	—	8	—	—	12	—	89	8·9	—	8	2	—	7	—	—	—	1	18	1·8	147	14·7	80
Stepney	207,176	—	133	67	—	10	1	—	40	—	251	10·7	—	9	4	5	1	—	1	—	6	26	1·1	331	14·1	89
Poplar	170,673	—	41	12	—	4	—	—	15	—	72	5·5	—	20	—	1	1	—	1	—	3	26	2·0	161	12·3	80
South Districts.																										
Southwark	209,143	—	85	25	—	14	—	—	20	—	144	9·0	—	10	2	1	2	—	2	—	7	24	1·5	231	14·4	94
Bermondsey	128,629	—	65	31	—	2	—	—	17	—	115	11·7	—	9	3	—	8	—	1	—	3	24	2·4	163	16·5	101
Lambeth	315,774	—	108	47	—	23	—	3	24	—	205	8·5	—	4	4	6	2	—	1	—	2	19	0·8	256	10·6	72
Battersea	179,622	—	76	12	—	2	—	1	14	—	105	7·6	—	3	—	1	11	—	1	—	3	19	1·4	130	9·4	99
Wandsworth	273,381	—	77	22	—	5	—	1	33	—	138	6·6	—	6	1	1	9	—	1	—	2	20	1·0	206	9·8	51
Camberwell	274,132	6	110	24	—	4	—	—	27	—	171	8·1	—	5	3	1	3	—	1	—	6	19	0·9	245	11·7	73
Deptford	115,496	—	34	16	—	—	—	—	8	—	58	6·5	—	4	1	1	1	—	—	—	3	10	1·1	115	13·0	97
Greenwich	105,350	—	55	19	—	1	—	—	4	—	79	9·8	—	2	—	—	2	—	1	—	2	7	0·9	77	9·5	98
Lewisham	148,463	—	43	15	—	1	—	—	4	—	63	5·5	—	2	1	1	2	—	—	—	1	7	0·6	96	8·4	45
Woolwich	127,345	—	35	11	—	1	—	—	10	—	57	5·8	—	1	1	—	2	—	—	—	—	4	0·4	80	8·2	71
Port of London	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

4. A piece of tissue removed from the uterus was handed to me recently wrapped in lint for examination. On unfolding it the well-known and peculiar smell of the placenta at childbirth—as far as my experience, a somewhat limited one, goes pathognomonic of pregnancy and not present in ordinary endometritic scrapings—was very noticeable. Would one be justified on this sign alone, unaccompanied by a microscopical examination, in swearing in a court of law that such tissue was placental in origin? If, as I believe, the smell *is* distinctive, it is perhaps a more reliable test even than the examination of a section, the only fault being that a "smell" cannot be "registered," so that other opinions may confirm that of the first observer.

These examples may, perhaps, show that too little use is often made of this much-despised sense of ours and that it may not only aid us materially in coming to a right conclusion but may also sometimes be our only guide.

I am, Sirs, yours faithfully,
J. BURTON CLELAND, M.D., Ch.M. Sydney,
Late Cancer Research Scholar, London Hospital;
Government Bacteriologist and Pathologist,
Perth, Western Australia.

Perth, Western Australia, June 15th, 1906.

THE PUBLIC HEALTH AND THE IMPORTATION OF FOREIGN CARCASSES.

To the Editors of THE LANCET.

SIRS,—The revelations concerning Chicago packing-house methods seem to have awakened amongst the majority of the general public a feeling of uneasiness as regards canned meats only. They look upon the chilled and frozen carcasses which we receive from America as a little inferior to English meat, but any suspicions as to its wholesomeness rarely enter their minds. Whilst I believe that it is the intention of our Government to take steps to safeguard the wholesomeness of the former class of goods, something should also be done to deal with the importation of the carcasses of foreign meat, especially as it forms such a very large proportion of our meat-supply. At the present time our inspection of such carcasses is always rendered very uncertain and must be so until we make more stringent laws. We might with advantage to ourselves frame regulations similar to those of Germany which govern the introduction of foreign meat into that country. There, as you know, such meat, whether fresh, chilled, or frozen, can only be imported in the entire carcasses, with the pleura, peritoneum, heart, lungs, kidneys, as well as the udder in cows, attached in "natural connexion." Even with these organs it is not possible always to be correct in one's judgment; yet how much more difficult must it be to give a satisfactory one from the examination our inspectors are able to make.

During the late meat famine in Germany our meat salesmen sent over there the carcasses of American cattle which had been slaughtered on their arrival at Deptford or Birkenhead. Our butchers complied with the German law as to the attachment of the internal organs, &c., and sent only the carcasses of those beasts whose internal organs were perfectly healthy, as the slightest trace of disease would preclude the passing of the carcasses as fit for food in Germany. At the same time numbers of carcasses whose internal organs presented lesions which here in England were sufficient to condemn the organs affected but not the whole carcass were not sent to Germany but dressed for sale in the English markets.

Surely if we in England will go to this trouble for our foreign customers it is not too much to ask that foreigners be made to do the same for us. As it is, if they choose, no matter what the condition of the internal organs might be if the rest of the carcass was apparently healthy, it would be good enough for England though not good enough for Germany.

I am, Sirs, yours faithfully,
J. F. HODGSON,
Deputy Medical Officer of Health.

Halifax, July 16th, 1906.

THE CAUSES OF LEPROSY.

To the Editors of THE LANCET.

SIRS,—Turkey in general, and Constantinople in particular, afford a very favourable field for the study of leprosy. The Ottoman capital possesses a large hospital for patients suffering from that terrible disease. It is, besides, not an uncommon sight here to meet lepers in all stages of disfigurement moving about quite freely in the streets. I have at present under my treatment two cases of leprosy and the following facts concerning them might not be without interest. The first case is that of a man about 30 years of age. He is a Jew and a member of a numerous family. They all live in one house. With the exception, however, of my patient, who is very badly disfigured, and his mother, whose symptoms of leprosy are manifested in the leonine appearance of her face, all the rest of the family—grandparents, father, two brothers, and five sisters—are perfectly healthy. As all these people lived for many years in one house, aggregating for the most part of the day in one room; as they frequently partake of their meals with one and the same spoon or fork and from one and the same dish, sometimes helping themselves quite in the oriental fashion by dipping into it their fingers (the use of forks and knives is not yet quite universal here); and as one towel, one napkin, and one sheet (I have very carefully ascertained the fact) are continually employed by all the members of the family, my patient included, who has a number of ulcerating sores on the whole of his body as well as on his face,—is it not striking that only two people are affected by the loathsome disease and that the rest enjoy what appears to be a perfect immunity? My other case is even more striking. A man, also a Jew, about 40 years of age, whose face, nose, ears, lips, eyelids and hands are literally eaten away by leprosy, affording an awful sight of mutilation, shared one small room and one bed with his old father for over 20 years. Yet the old man is perfectly free from every symptom, in spite of the fact that here, too, the same conditions and circumstances of closest intercourse, as enumerated in my first case, prevailed. The question of contagiousness or infectiousness of leprosy appears to me, therefore, in view of the above facts, to point to a negative answer.

As to the fish causation theory, so sedulously propounded by Mr. Jonathan Hutchinson, I would like to submit the following consideration. If there are places in the world where bad fish of every possible form and description, cured and uncured, are consumed in astonishingly large quantities, these places are to be found in the districts and suburbs on the banks of the Bosphorus and of the Golden Horn. Yet leprosy is there exceedingly rare and in many parts has never been known to exist. As emigration among the indigenous poor classes of the Jewish, Greek, and Armenian population (and it is these classes that enjoy so much the consuming of bad fish, especially of the so-called improperly cured *haringha*) very seldom, or almost never, takes place, the argument cannot be put forward that the infected elements might show the manifestations of the disease of leprosy after quitting the country. Then, again, in my two leprotic cases the *haringha*, very often stinking and only half cured, has been for many years a favourite dish, frequently eaten with salads, and yet the greater majority of members remained quite unaffected. I venture to think that as long as the real nature and the biological conditions of the bacillus lepræ are not exactly known the question of causation of leprosy, as well as of its contagiousness or infectiousness, will remain a debatable one.

I am, Sirs, yours faithfully,
DAVID SANDLER.

British Post Office, Constantinople, July 12th, 1906.

DENDRITES AND DISEASE.

To the Editors of THE LANCET.

SIRS,—May I be permitted to draw attention to certain remarks made by Sir William Gowers in his lecture on Dendrites and Disease, published in THE LANCET of July 14th, p. 67. In the first place, he states without any qualifying remarks that the terminal branchings of the nerve cell processes do not unite, "they end in contiguity to others, not in continuity with them." This is a view by no means universally held at the present time by neuro-histologists; and, moreover, it is one which year by year as new appearances are brought to light in nervous tissue by more delicate technique is becoming more widely doubted. Sir William Gowers confines his remarks on what he terms "facts of structure" in nervous tissue to appearances presented by this tissue after treatment with silver, according to one or another modification of Golgi's method. On the vexed question of thorns or gemmules he says: "By silver staining they [the dendrites] are revealed and seen to end in

INDIAN MEDICAL SERVICE.

The King has approved of the retirement from the Service of the undermentioned officer:—Lieutenant-Colonel Joseph William Townsend Anderson (dated April 15th, 1906).

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major David Lennox to be Surgeon-Lieutenant-Colonel (dated June 15th, 1906).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Gloucestershire: Surgeon-Lieutenant A. Ogilvy to be Surgeon-Captain (dated July 18th, 1906).

Royal Engineers (Volunteers): 1st Devonshire and Somersetshire: Surgeon-Lieutenant-Colonel G. B. Fraser is granted the honorary rank of Surgeon-Colonel (dated July 17th, 1906); Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel G. B Fraser resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated July 18th, 1906).

Rifle: The Queen's Rifle Volunteer Brigade the Royal Scots (Lothian Regiment): Surgeon-Major A. D. Webster is borne as Supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, 1st Lothian Volunteer Infantry Brigade (dated July 18th, 1906). 1st Volunteer Battalion the Lincolnshire Regiment: Surgeon-Lieutenant A. S. Green to be Surgeon-Captain (dated July 18th, 1906). 4th Volunteer Battalion the Cheshire Regiment: Second Lieutenant R. Ollerenshaw resigns his commission (dated July 18th, 1906); Robert Ollerenshaw (late Second Lieutenant) to be Surgeon-Lieutenant (dated July 18th, 1906). 1st (Brecknockshire) Volunteer Battalion the South Wales Borderers: William Lewis Pritchard to be Surgeon-Lieutenant (dated July 18th, 1906). 2nd Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derby shire Regiment): Surgeon-Lieutenant J. Buckley resigns his commission (dated July 18th, 1906). 1st Nottinghamshire (Robin Hood) Volunteer Rifle Corps: Surgeon-Lieutenant R. P. Shearer is removed from the Volunteer Force for failing to fulfil the prescribed conditions for efficiency (dated June 20th, 1906).

A FIELD HOSPITAL BURNT.

A telegram in the *Morning Leader* of July 16th, dated Durban, Sunday, states that the field hospital at Thring's Post has been destroyed by sparks from a rubbish fire. All the patients were saved but the kit was lost. The rescue of the patients was of a hazardous nature. Some were removed from the burning tent while cartridges were exploding in every direction.

THE ORGANISATION OF AN AUXILIARY MEDICAL SERVICE FOR WAR.

Captain W. Salisbury Sharpe, Royal Army Medical Corps (Volunteers), contributes to the *Journal of Preventive Medicine* for July an interesting article on the above subject in which he says: "Let us, as medical men, record the fact that we appreciate the necessity of universal service, and in the meantime try to maintain and improve the auxiliary services as a stem on which the larger service may be grafted, for we must recognise as a grave error the present tendency to break down the existing service by imposing impossibly onerous conditions, and, having done so, to cast it aside as a failure, and start anew to draw out a wider plan." He discusses his subject under the following heads: (1) Royal Army Medical Corps conditions necessitating auxiliary aid in war; (2) the existing auxiliary medical services, their adaptation for peace conditions and their want of adaptation for war conditions; (3) the kind of auxiliary aid required in war—viz., officers, men, transport, and material; and (4) means of meeting these needs.

THE ADMIRALTY AND PHYSICAL TRAINING.

In a circular letter issued on July 9th to the commander-in-chief of fleets and stations the Admiralty directs that in future the whole staff of the engine-room department of ships are to undergo physical training as far as circumstances permit in connexion with their duties. The instruction will be given by the executive officer who is responsible for physical training, subject, however, to the supervision of the engineer officer, who is also to be consulted as to when the services of the engine-room ratings and stokers can best be spared for physical drill.

DISTRIBUTION OF PRIZES AT HASLAR.

The course of instruction for surgeons of the Royal Navy at Haslar was brought to a close on July 2nd when the prizes were distributed by the Director-General of the Medical Service of the Royal Navy. The gold medal was awarded to Surgeon L. L. Greig of the University of Glasgow, the microscope to Surgeon L. Warren of the London Hospital, and the silver medal and books to Surgeon R. C. P. McDonagh of St. Bartholomew's Hospital. The names of the candidates with the marks gained are as follows:—

Leonard Warren	4610	Percy P. Minett	[illegible]
Louis L. Greig	4447	Frederick G. Goble	[illegible]
Reginald C. P. McDonagh	4168	John Bourdas	[illegible]
Ewen Cameron	4128	*Herbert A. Browning ...	–

* This officer could not attend the second part of the examination owing to illness.

Correspondence.

"Audi alteram partem."

THE SENSE OF SMELL AS AN AID IN DIAGNOSIS.

To the Editors of THE LANCET.

SIRS,—The importance of the sense of smell in clinical diagnosis has sunk almost into insignificance before that of sight or even that of hearing. This is in part due to its poor development in many persons but also to neglect of its use. Bacteriology has adopted it to some extent in noticing the characteristic odours of certain cultures, but it seems to me that in some cases it is of material aid at the bedside and may with reason be admitted to medico-legal importance. One or two instances of its services in these respects may suggest others and will suffice in calling attention to its numerous applications.

1. The smell of acetone in the breath of patients with diabetic coma is well known. An instance in which this sign preceded by some hours the onset of untoward symptoms made a great impression upon me as a student. On entering a long ward containing 32 beds I approached the house physician who was examining a patient new to me. As I came near a strong ethereal smell was very noticeable and I asked the physician at once why an anæsthetic had been given, the ward being a medical one. None had, and on second thoughts—or rather a second smell—the odour was not that of ether but of acetone. Within a few hours, though at the time no suspicious symptoms were present, those of diabetic coma supervened with a fatal result.

2. Nurses in frequent attendance on typhoid fever patients describe a peculiar "typhoid" smell which, from a reliable observer, may be of great service in doubtful cases. The nurses in charge of the plague hospital at Perth, Western Australia, assure me that the patients there have a special and distinctive "sour" smell which, since my attention was called to it, I have noticed myself; still, I cannot place sufficient reliance on it as yet in my own case to consider it a certain diagnostic sign. They inform me that on entering a room where a supposed plague patient is lying they can tell at once by this means whether it is a genuine case or not. Other infectious diseases have well-known and oft-described pathognomonic smells.

3. Rheumatic fever has a characteristic sour smell associated with its acid perspiration. Some years ago I was giving an anæsthetic for a supposed case of appendicitis in a girl in whom the usual symptoms and signs of that affection were present. During the administration the patient's perspiration attracted my attention from its peculiar rheumatic-like smell. To our astonishment the appendix was found to be perfectly normal. Now the evening before I had been reading Treves's "System of Surgery" and had come upon a reference to a rheumatic affection which simulated appendicitis. Bearing in mind the peculiar odour I had noticed and mentioning it, I hazarded the suggestion that this might be a case in point. The patient was removed from the operating table, but though the wound itself showed no sign of suppuration endocarditis and pericarditis developed and death followed. Was this a mere coincidence and not a manifestation of acute rheumatism or was the hypothetical diagnosis, based on the sense of smell, in reality the correct one?

dead and the hair began to grow again before the month was over. The cases of tinea circinata under this treatment disappear like *magic under one application.* Of course, in many cases of tinea tonsurans more than one application may be found necessary but never more than three. The efficacy of formic aldehyde in the treatment of ringworm is, no doubt, in great part due to the pungency of the vapour which penetrates down into the hair follicles and destroys the cocci. I am, Sirs, yours faithfully,

Tetbury, Glos., July 14th, 1906. DESBOROUGH BRODIE.

A FAMILY TENDENCY TOWARDS FRACTURE OF THE PATELLA.

To the Editors of THE LANCET.

SIRS,—The following series of facts is, I think, of some general interest and therefore worth recording.

In the Westminster Hospital, under Mr. C. Stonham, senior surgeon, there is at the present time a patient, aged 38 years, with a transverse fracture of his right patella. Nine years ago the same man fractured the left patella. His father when 20 years of age fractured his left patella; one brother when 32 years old fractured his right patella; and another brother at the age of 35 years also broke his right patella. All accidents were the result of indirect violence, and all are healthy men and carry on different trades. I am, Sirs, yours faithfully,

J. H. HEBB,
House Surgeon.

July 14th, 1906.

MUMPS AS AN AILMENT OF ADULTS IN THE ARMY.

To the Editors of THE LANCET.

SIRS,—I should like to add a word or two in support of the efforts made by recent writers to secure more serious consideration for the disease known as *mumps*, for the malady is still regarded by the majority of people as of a trivial character.

A small outbreak occurred among some troops under my medical care. There were only 11 cases but no less than five of these had complications of a severe nature. Four men had orchitis which, in at least one case, will probably lead to atrophy of the testicle or testicles (one man having had double orchitis). In three instances it was orchitis which led to the diagnosis. One man had double iritis on the twelfth day after onset of the disease. In three cases the temperature was 104° F. for more than one day—one of these men had intense headache and delirium, indicating cerebral disorder. The remaining complication or rather sequel took the form of great weakness of the lower limbs, which symptom became marked in one man after he had returned to duty. The patients were all isolated—the total loss of working days was therefore considerable. The cases are of recent date and may yet be followed by serious after-effects, such as, for instance, deafness.

I am, Sirs, yours faithfully,
F. SMITH,
Major, Royal Army Medical Corps.

NOTES OF TWO OUTBREAKS OF DIPHTHERIA SUCCESSFULLY STAMPED OUT BY THE FREE USE OF PROPHYLACTIC INJECTIONS OF DIPHTHERIA ANTITOXIN.

To the Editors of THE LANCET.

SIRS,—The free use of prophylactic injections of diphtheria antitoxin has proved so successful in *stamping out* outbreaks of diphtheria in two very susceptible communities under my care that the instances seem worthy of record.

1. In a girls' school containing 16 boarders and six day scholars a boarder fell ill on March 13th, 1906, with diphtheria. The following measures were at once taken: (1) the school was broken up; (2) all the day scholars received a prophylactic injection; (3) all the boarders were sent to their homes with a strongly worded appeal that they should receive an injection (in 13 instances this advice was taken; in two cases isolation and medical supervision were substituted); and (4) the mistresses and inmates of the school-house were injected. These measures were completely successful and no second case occurred.

2. In a second and contiguous girls' school containing 60 to 70 day scholars and six boarders, a day scholar fell ill with diphtheria on March 23rd, 1906 As this scholar had attended school for some days no further steps were taken than the injecting of the child's household and a notification to the head mistress to at once report any case of illness. On March 29th, however, a second day scholar fell ill with the disease The school being too numerous to inject in every case I judged it sufficient (1) to inject all the classmates of the two cases; (2) all the boarders; (3) a few other scholars who, being friendly with one or other of the two cases, were known to be contacts; (4) the school was broken up; and (5) all parents were requested to notify at once any case of illness. No further case occurred.

The following general remarks suggest themselves to me. The prophylactic injection used in each case was 1000 units. Each of the three cases was of a severe type and in each case Klebs-Löffler bacilli were proved to be present. None of the children developed any serum disease. Two of the adults developed transient urticaria and one muscular pains in addition lasting a few days. No connexion could be traced between the outbreaks in the two schools; this connexion, however, must have occurred, as there have been no other cases of this disease in the neighbourhood for a considerable time and the interval of ten days between the cases is about the time which experience has taught me a contact is usually found to be suffering from the disease. When one thinks of the ease with which these two outbreaks were stamped out without loss of life and without any serious trouble or risk one cannot be too thankful that we have at our command so potent a preventive as the serum. Without serum the outbreaks would probably have spread widely, as the two schools are attended by children of all ages from five to 16 in constant association with each other, both in and out of school.

I am, Sirs, yours faithfully,
WILLIAM BLIGH, M.D., B.S. Lond.

Caterham Valley, July 14th, 1906.

INACCURATE TEXT-BOOKS.

To the Editors of THE LANCET.

SIRS,—The position of a medical man working a general practice single-handed and at the same time attempting to read for the D.P.H is not an enviable one, for he is absolutely dependent for his knowledge upon his reading altogether unaided by the systematic teaching of his hospital days. How important then is it to be able to rely upon a good, sound, up-to-date text-book as a foundation for one's reading. With this object I obtained a certain well-known text-book, which has been before the public 16 years, and of which a revised edition appeared less than a year ago. From this I have already learnt the following astonishing facts. That air contains 5 per cent of argon; that proof spirit contains only 42 7 per cent. absolute alcohol by volume; that rectified spirit contains 16 per cent. of water; that the formula for milk-sugar or lactose is $C_{12}H_{24}O_{12}$, and that of stearin $C_{21}H_{40}O_6$; that the proper way to join a drain to a sewer is to connect the drain with the *lower* half diameter of the sewer; that potassium *bi*chromate—i.e., the red chromate—is the usual test for lead; that in making a quantitative examination for calcium in water the amount should be calculated from the weight of the calcium oxide formed by ignition; that Gaertner's bacillus ferments lactose and sometimes dextrose (in this statement I think the authors have Muir and Ritchie on their side but no one else); that—but what need to continue? Surely, Sirs, it would go hard with one if he made such statements before the examiners.

I am, Sirs, yours faithfully,
BETA.

July 14th, 1906.

⁂ Two examples which "Beta" gives are surely not inaccuracies. It is the fact, for instance, that rectified spirit contains 16 per cent. of water and, again, $C_{12}H_{24}O_{12}$ is the correct though empirical formula for milk-sugar. It is, of course, better represented as $C_{12}H_{22}O_{11},H_2O$.—ED.L.

a small knob or in a point, and their terminal portion bears small bud-like projections on the surface. It is this fact of their termination (discovered by Ramon y Cajal) which is relied on as evidence of the discontinuity of the neurons."

Now, whilst it is perfectly true that in silver impregnated tissue the appearance is such as he describes, surely this is no warrant for definitely concluding that because this particular method fails to show anything in structural relationship to the apparently terminal knobs therefore nothing exists. The neuron doctrine must be in a parlous state if it has to rely upon appearances revealed by one method which are refuted by other and more delicate methods.

Methylene blue when appropriately applied forms the basis of one of these newer methods which reveals structures infinitely more delicate than those shown by the silver impregnation used by Ramon y Cajal. It gives a picture which throws grave doubts on the accuracy of much that is shown by silver. Amongst other new details which it reveals it clearly shows that the little lateral projections appearing as terminal by the silver impregnation method are in reality long beaded fibrils, the course of which can often be traced in the matrix for very considerable distances. Dr. Alexander Hill long ago pointed this out even in silver preparations which do occasionally show it.

Finally, Sir William Gowers is not quite accurate when he states that "before staining agents can reveal structure hardening agents have to increase the consistence of the substance and multiply many times any original difference that exists." This does not quite apply either to Ehrlich's "vital" method or that which I have described as the "pseudo-vital" method. In both of these the stain is applied to the tissue prior to any hardening agent and in both cases with very little question success depends upon chemical interchanges between the tissue and the stain, which the addition of a hardening agent would render impossible. I am, Sirs, yours faithfully,

JOHN TURNER.

Essex County Asylum, Brentwood, July 14th, 1906.

THE WORKMEN'S COMPENSATION BILL.

To the Editors of THE LANCET.

SIRS,—On comparing the above Bill as recently amended in Committee with the extracts from the printed Bill of paragraphs affecting the medical profession which appeared in THE LANCET of April 21st last I find that the only alteration made is in Paragraph 15 of the first schedule. By the first alteration the workman is placed on an equality with the employer as to being able to obtain the certificate of his own medical attendant and use it, and I believe this will be considered as only just. In the second alteration the medical referee may in his discretion, in certain circumstances, decline to give a certificate. I think in this case he should be required shortly to state the grounds for his refusal for the information of all parties interested. I have put the additions to the clause in italics.

First Schedule (15).—A workman shall not be required to submit himself for examination by a medical practitioner under paragraph (4) or paragraph (14) of this schedule otherwise than in accordance with regulations made by the Secretary of State, or at more frequent intervals than may be prescribed by these regulations. Where a workman has so submitted himself for examination by a medical practitioner, *or has been examined by a medical practitioner selected by himself, and the employer or the workman, as the case may be*, has within six days after such examination furnished *the other* with a copy of the report of that practitioner as to the workman's condition, then in the event of no agreement being come to between the employer and the workman as to the workman's condition or fitness for employment, the registrar of a county court on application being made by *either party*—(a) may, on payment by the applicant of such fee not exceeding £2 as may be prescribed if the application is made before the amount of the weekly payment is settled; and (b) shall without any fee if the application is made for the purposes of review after the weekly payment is settled, refer the matter to a medical referee. The medical referee to whom the matter is so referred shall, in accordance with regulations made by the Secretary of State, give a certificate as to the condition of the workman and his fitness for employment, specifying, where necessary, the kind of employment for which he is fit, and that certificate shall be conclusive evidence as to the matters so certified. Where no agreement can be come to between the employer and the workman as to whether or to what extent the incapacity of the workman is due to the accident, the provisions of this paragraph shall apply, if both parties so agree in writing, as if the question were a question as to the condition of the workman, *provided that the medical referee, if he considers that the evidence before him is not sufficient to enable him to give a conclusive decision, may decline to give a certificate.*

I am, Sirs, yours faithfully,
ALBERT BENTHALL, F.R.C.P. Edin., &c.

Fellows-road, N.W., July 10th, 1906.

A NEW METHOD OF STAINING ENCAPSULATED MICRO-ORGANISMS.

To the Editors of THE LANCET.

SIRS,—Many methods of staining to show simultaneously the organism and its capsule have been recommended from time to time but none of them have been at all certain in their results. In these circumstances it might be worth while to record that with the following method we have been able to get satisfactory and certain results here. The specimen is first stained from three-quarters of a minute to one minute in the ordinary carbol-fuchsin solution and then afterwards for one minute in the following solution as a differential stain: mercuric chloride, 0 1 gramme; and water and alcohol, of each 25 cubic centimetres. The micro-organisms are stained bright red and are clearly seen; the capsule remains colourless against the general pink ground. This stain is permanent and I think can safely be recommended for demonstrating encapsulated organisms. In staining sputa the specimen should be kept for one and a half minutes in the carbol-fuchsin and for two minutes in the special solution.—I am, Sirs, yours faithfully,

DR. HANS SCHÄDEL.

Pathological Laboratory, "Dreadnought" Hospital,
Greenwich, S.E., July 14th, 1906.

HYGIENIC MEASURES AGAINST SYPHILIS.

To the Editors of THE LANCET.

SIRS,—Dr. C. R. Niven asks "What is morality?" He may remember a definition in Professor T. Clifford Allbutt's "System of Medicine" that "The essential of vice is the instant indulgence of desire at the cost of future disadvantage." I know no clearer statement than this of the real meaning of immorality which can thus hardly be said to be "a matter of instinct rather than of ratiocination." And certainly it is by no means rare to find in England that vice is avoided simply because it is not worth the risk of venereal disease. Not a high motive truly, but sufficient to prove that desire is not so ungovernable as Dr. Niven would seem to believe. By removing the hedge of the risk of syphilis from the margins of "the narrow way" we simply should eliminate an important restraint, especially for that increasing class whose actions are becoming more and more influenced by reason than by instinct. But has Dr. Niven any figures to bring forward to prove that "regulation of vice" *does* limit the ravages of venereal disease? No. The real fight against syphilis should be part of the campaign against luxury, which, for example, prevents the well-educated, decently born, industrious, and temperate medical man from marrying and having a family till he is 30–35 years of age.—I am, Sirs, yours faithfully,

Manchester Fever Hospital, July 7th, 1906. ERIC M. WILKINS.

THE TREATMENT OF RINGWORM.

To the Editors of THE LANCET.

SIRS,—I was very much interested in Mr. T. Jackson's letter on the treatment of ringworm in THE LANCET of June 30th and I am glad to see that there are still some who appreciate the value of less expensive treatment than that of manifold exposures to the x rays for that troublesome disease. For a short time I used liquor epispasticus in much the same way as Mr. Jackson suggests, but instead of diluting it with glycerine I used the full strength. On the whole the results were satisfactory and I was pleased with my success, until I was called in to see a man whom I had treated in this way. He was suffering from acute headache and sickness, his face was puffy, and his urine was thick with albumin. Luckily the nephritis was transient and disappeared after hot packs and purgatives had been exhibited. Since that time I have had many opportunities of carrying out the line of treatment as suggested by Mr. J. Stafford Mellish in the *Hospital* of June 30th—namely, the rubbing in of formic aldehyde (40 per cent.). The cures are quicker and more certain than with liquor epispasticus and there is no danger of setting up acute nephritis. The worst case of ringworm which I have ever seen, covering the whole head, was treated by Mr. Mellish a short time back with one rubbing in of formic aldehyde and then the application of ung. hydrarg. oxid. flav. dil. In a fortnight the disease was dead and the hair began to grow again before the month was over. The cases of tinea circinata under this treatment disappear like magic under one application. Of course, in many cases of tinea tonsurans more than one application may be found necessary but never more than three. The efficacy of formic aldehyde in the treatment of ringworm is, no doubt, in great part due to the pungency of the vapour which penetrates down into the hair follicles and destroys the cocci. I am, Sirs, yours faithfully,

Tetbury, Glos., July 14th, 1906. DESBOROUGH BRODIE.

A FAMILY TENDENCY TOWARDS FRACTURE OF THE PATELLA.

To the Editors of THE LANCET.

SIRS,—The following series of facts is, I think, of some general interest and therefore worth recording.

In the Westminster Hospital, under Mr. C. Stonham, senior surgeon, there is at the present time a patient, aged 38 years, with a transverse fracture of his right patella. Nine years ago the same man fractured the left patella. His father when 20 years of age fractured his left patella; one brother when 32 years old fractured his right patella; and another brother at the age of 35 years also broke his right patella. All accidents were the result of indirect violence, and all are healthy men and carry on different trades. I am, Sirs, yours faithfully,

J. H. HEBB,
July 14th, 1906. House Surgeon.

MUMPS AS AN AILMENT OF ADULTS IN THE ARMY.

To the Editors of THE LANCET.

SIRS,—I should like to add a word or two in support of the efforts made by recent writers to secure more serious consideration for the disease known as mumps, for the malady is still regarded by the majority of people as of a trivial character.

A small outbreak occurred among some troops under my medical care. There were only 11 cases but no less than five of these had complications of a severe nature. Four men had orchitis which, in at least one case, will probably lead to atrophy of the testicle or testicles (one man having had double orchitis). In three instances it was orchitis which led to the diagnosis. One man had double iritis on the twelfth day after onset of the disease. In three cases the temperature was 104° F. for more than one day—one of these men had intense headache and delirium, indicating cerebral disorder. The remaining complication or rather sequel took the form of great weakness of the lower limbs, which symptom became marked in one man after he had returned to duty. The patients were all isolated—the total loss of working days was therefore considerable. The cases are of recent date and may yet be followed by serious after-effects, such as, for instance, deafness.

I am, Sirs, yours faithfully,
F. SMITH,
Major, Royal Army Medical Corps.

NOTES OF TWO OUTBREAKS OF DIPHTHERIA SUCCESSFULLY STAMPED OUT BY THE FREE USE OF PROPHYLACTIC INJECTIONS OF DIPHTHERIA ANTITOXIN.

To the Editors of THE LANCET.

SIRS,—The free use of prophylactic injections of diphtheria antitoxin has proved so successful in stamping out outbreaks of diphtheria in two very susceptible communities under my care that the instances seem worthy of record.

1. In a girls' school containing 16 boarders and six day scholars a boarder fell ill on March 13th, 1906, with diphtheria. The following measures were at once taken: (1) the school was broken up; (2) all the day scholars received a prophylactic injection; (3) all the boarders were sent to their homes with a strongly worded appeal that they should receive an injection (in 13 instances this advice was taken; in two cases isolation and medical supervision were substituted); and (4) the mistresses and inmates of the school-house were injected. These measures were completely successful and no second case occurred.

2. In a second and contiguous girls' school containing 60 to 70 day scholars and six boarders, a day scholar fell ill with diphtheria on March 23rd, 1906. As this scholar had attended school for some days no further steps were taken than the injecting of the child's household and a notification to the head mistress to at once report any case of illness. On March 29th, however, a second day scholar fell ill with the disease. The school being too numerous to inject in every case I judged it sufficient (1) to inject all the class mates of the two cases; (2) all the boarders; (3) a few other scholars who, being friendly with one or other of the two cases, were known to be contacts; (4) the school was broken up; and (5) all parents were requested to notify at once any case of illness. No further case occurred.

The following general remarks suggest themselves to me. The prophylactic injection used in each case was 1000 units. Each of the three cases was of a severe type and in each case Klebs-Löffler bacilli were proved to be present. None of the children developed any serum disease. Two of the adults developed transient urticaria and one muscular pains in addition lasting a few days. No connexion could be traced between the outbreaks in the two schools; this connexion, however, must have occurred, as there have been no other cases of this disease in the neighbourhood for a considerable time and the interval of ten days between the cases is about the time which experience has taught me a contact is usually found to be suffering from the disease. When one thinks of the ease with which these two outbreaks were stamped out without loss of life and without any serious trouble or risk one cannot be too thankful that we have at our command so potent a preventive as the serum. Without serum the outbreaks would probably have spread widely, as the two schools are attended by children of all ages from five to 16 in constant association with each other, both in and out of school.

I am, Sirs, yours faithfully,
WILLIAM BLIGH, M.D., B.S. Lond.
Caterham Valley, July 14th, 1906.

INACCURATE TEXT-BOOKS.

To the Editors of THE LANCET.

SIRS,—The position of a medical man working a general practice single-handed and at the same time attempting to read for the D.P.H. is not an enviable one, for he is absolutely dependent for his knowledge upon his reading altogether unaided by the systematic teaching of his hospital days. How important then is it to be able to rely upon a good, sound, up-to-date text-book as a foundation for one's reading. With this object I obtained a certain well-known text-book, which has been before the public 16 years, and of which a revised edition appeared less than a year ago. From this I have already learnt the following astonishing facts. That air contains 5 per cent. of argon; that proof spirit contains only 42·7 per cent. absolute alcohol by volume; that rectified spirit contains 16 per cent. of water; that the formula for milk-sugar or lactose is $C_{12}H_{24}O_{12}$, and that of stearin $C_{21}H_{43}O_6$; that the proper way to join a drain to a sewer is to connect the drain with the *lower* half *diameter* of the sewer; that potassium *bichromate*—i.e., the red chromate—is the usual test for lead; that in making a quantitative examination for calcium in water the amount should be calculated from the weight of the calcium *oxide* formed by ignition; that Gaertner's bacillus ferments lactose and sometimes dextrose (in this statement I think the authors have Muir and Ritchie on their side but no one else); that—but what need to continue? Surely, Sirs, it would go hard with one if he made such statements *before* the examiners.

I am, Sirs, yours faithfully,
July 14th, 1906. BETA.

⁂ Two examples which "Beta" gives are surely not inaccuracies. It is the fact, for instance, that rectified spirit contains 16 per cent. of water and, again, $C_{12}H_{24}O_{12}$ is the correct though empirical formula for milk-sugar. It is, of course, better represented as $C_{12}H_{22}O_{11}H_2O$.—ED. L.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Salford Workhouse and Infirmary.

AT a recent visit to the Salford workhouse Mr. H. Jenner-Fust, the Local Government Board inspector, gave some criticisms which show that there is still room for improvement in the management. He spoke of the large number of infirm and helpless inmates and suggested that they should be looked after during the night by a paid attendant. He also said that the basement where the old men sat and smoked was a "miserable place," used for peeling potatoes, and he asked that they "should be kept upstairs in the day room. The atmosphere downstairs was not of the best." These improvements may well be carried out without provoking the suspicion that Salford wishes to rival metropolitan Poplar. The establishment of the Culcheth cottage homes has led to the lessening of pressure on the workhouse owing to the removal of many of the children and it was satisfactory to hear of the success of the homes, "the children being extremely healthy and their teeth particularly good." It appears that there are some spare homes at Culcheth which are going to be occupied by children from the Leigh union.

Death of Mr. W. L. Saunder.

The Manchester Royal Infirmary has suffered a severe loss in the death of the general superintendent and secretary, Mr. W. L. Saunder. He died on July 10th, after an illness of several weeks, at the age of 66 years. Appointed secretary in 1878, his service to the infirmary was of 28 years' duration. Sprung from a family of soldiers he passed some of his early years in the Suffolk Regiment and did duty for a time at the Cape of Good Hope. Just before the abolition of purchase he sold out and became secretary to the Royal United Hospital at Bath, which he left for Manchester. He was a disciplinarian but possessed the gift of tact and the power of organisation in a high degree, fostered, no doubt, by his experience of military affairs, and these powers were for the rest of his life devoted freely to the interests of the infirmary, to the great advantage of that institution and the public. He soon gained the confidence of the infirmary authorities and this confidence continued through all the changes that time brought with it among those who year by year sat at the infirmary board.

A Case of Anthrax.

On July 14th the Bradford coroner held an inquest on a wool villeyer, aged 77 years. He had been engaged in manipulating Russian camel-hair. It was stated that he went home from his work about noon on the previous Saturday, complained of pain and felt sick, and had no appetite. The same afternoon he fainted and was unconscious for ten minutes. On the next day he was worse and death took place on Tuesday night. Dr. F. W. Eurich, who made a post-mortem examination, said that the state of the organs and the body generally "was scarcely consistent with deceased having died from anything but anthrax, and as what he did find was consistent with that disease he was of opinion that death was due to anthrax by inhalation." In reply to a question he said that it was rarely possible to find anthrax bacilli 30 hours after death.

Food and the Ship Canal.

The Manchester Ship Canal is in the peculiar position of being righteous against its will. It has been unable to escape from having powers conferred on it to examine, and if need be to condemn, food, while some other ports are in a position of greater freedom and less responsibility. But though the recent decision may for a while, among the unthinking and the manufacturers of inferior foods, tell against its trade, to those who look at the matter from another point of view it will tend to its advantage. The satisfactory passing of severer tests than those applied elsewhere gives a valuable testimonial to the quality of the food-stuffs that come up the canal. Before long surely the tests at all ports of entry will be kept at the same standard but in the meantime the fact that food has come by the Manchester Ship Canal will be a strong point in its favour.

July 17th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

The Leeds and West Riding Medico-Chirurgical Society.

THE annual report of this society has just been issued to its members. The session 1905–06 was the thirty-fourth, for the society was founded in the year 1872, meeting for the first time under the presidency of the late Dr. Chadwick, with the late Mr. A. F. McGill and Dr. West Symes as honorary secretaries. The past session has been a remarkably successful one in many respects. Mr. Edward Ward has been an excellent president and his brilliant, amusing, and withal highly instructive introductory address will long be remembered by all who heard it. The society, which draws its members from even a wider area than its name would appear to imply, now includes 333 ordinary members. During the past session 11 meetings have been held—seven ordinary, two pathological, and two clinical. The average attendance of members was 76. At the annual meeting, held on May 4th, Dr. A. H. Bampton of Ilkley was elected president and Mr. Edmund Robinson of Leeds and Dr. W. H. Cheetham of Guiseley were elected vice-presidents. One of the attractions of membership of this society is that its library is amalgamated with that of the medical school of the University, to the use of which and of the reading room members have full access. By this amalgamation the number of books purchased and the number of scientific periodicals taken are much greater than if the two bodies were acting independently.

Post-Graduate Course at the Leeds Public Dispensary.

The first course of post-graduate study at the Leeds Public Dispensary has proved highly successful. That there has been a demand, real though not loudly expressed, for such a course in Leeds has been proved. The honorary staff of the dispensary took up the consideration of instituting such a course some months ago. The success of the inaugural meeting was assured by the presence of Mr. Jonathan Hutchinson who addressed a large meeting of the profession in the new dispensary buildings on April 30th and gave valuable counsel as to how such a course should be conducted. The committee decided that the course should be of an eminently practical character and should consist of demonstrations, clinical and pathological, rather than of lectures, and this policy soon rendered it necessary to limit the class to 25, for a good many more than that number expressed a wish to attend. The course was conducted by six members of the honorary staff, each of whom gave a couple of demonstrations. Mr. H. Littlewood and Mr. B. G. A. Moynihan were invited to deliver a lecture each, the former selecting as his subject "Appendicitis" and the latter "The Treatment of Enlarged Prostate"; Dr. T. Wardrop Griffith gave two demonstrations on pathological specimens and clinical cases of Mitral and Aortic Valvular Disease; Mr. E. F. Trevelyan's afternoons were devoted to selected cases of Infantile Palsy and of Pulmonary Phthisis; Dr. W. H. M. Telling showed cases of Skin Disease and cases of Lung Disease in Childhood; Dr. Douglas Seaton's demonstrations were on cases of general surgical interest; Mr. Michael A. Teale discoursed on the Methodical Examination of the Eye; and Dr. O. O. Gruner gave demonstrations on the Clinical Examination of the Blood. The meetings lasted from one and a half to two hours, were extremely well attended, and were so much appreciated that the secretaries are considering the advisability of arranging for either a repetition of the course or a continuation series of demonstrations to be given.

July 17th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Health of Cornwall in 1905.

THE annual report of vital statistics for the county of Cornwall for 1905 has just been published. This states that during the year 7101 births were registered, corresponding to a rate of 22 per 1000, as compared with 22·31 in 1904. 5133 deaths occurred, giving a rate of 15·90 per 1000, against 14·72 in the previous year. The zymotic death-rate was 0·862 per 1000, compared with 0·573 per 1000 in 1904.

322 cases of infectious diseases were notified, as against 39 in 1904. 15 deaths occurred from typhoid fever.

Rhondda and Pontypridd Water-supply.

About two-thirds of the houses in the Rhondda valleys and most of those in the adjoining town of Pontypridd are supplied with water collected from the high lands and stored in a reservoir of 200,000 gallons capacity situated at the head of the Rhondda Fach or Little Rhondda. From time to time during the past ten years there has been a peaty discolouration of this water and although chemical and bacteriological examination has shown it to be of excellent quality many of the inhabitants, on account of the discolouration, have resorted to questionable supplies from mountain streams and elsewhere, resulting on one occasion in an outbreak of typhoid fever. Although the nature of the gathering ground has from the first suggested the possibility of the water possessing a plumbo-solvent action it is only quite recently that such action has been detected. In one part of the Rhondda urban district there have been definite cases of plumbism and the medical officer of health (Dr. J. D. Jenkins) has deemed it desirable to issue circulars to the inhabitants of the affected area advising them to draw off from the pipes every morning about a gallon of water before using it for drinking purposes. The water supplied to a house in Pontypridd, closely adjoining the Rhondda district, has been examined at the Cardiff and County Laboratory, when 0·31 grain of lead to the gallon was found in one sample and 0·17 grain in another. Both samples were taken on the same day.

Water-supply for Upton Scudamore.

Miss Wheeler of Warminster has given £450 for the purpose of providing a water-supply for the village of Upton Scudamore (Wiltshire).

Provincial Meeting of the Incorporated Society of Medical Officers of Health.

The proceedings connected with the annual provincial meeting of the Incorporated Society of Medical Officers of Health usually occupy only a portion of one day. This year being the jubilee of the society they have been prolonged over two days. On the afternoon of July 14th a meeting, presided over by Sir Shirley F. Murphy, was held in the Guildhall, Bath, when Mr. C. S. Loch, LL D., secretary of the Charity Organisation Society, read a paper upon the Relation of Sanitary Authorities to Charitable Societies, in which he pointed out what these two bodies might do in coöperation both in individual cases and in special areas. He first of all showed that although in recent years there were better health and a lower rate of mortality than formerly, yet there were more dependence on the Poor-law and a larger expenditure of charitable resources. This, he maintained, ought not to be, for increased strength in one quarter should imply additional force in another. Better health should mean greater force of character, more independence, and greater self-support. He insisted that both on the sanitary authorities of the country and on the charities the duty was imposed on behalf of the nation of preventing deterioration and as far as possible the misery that comes with it and of improving the conditions of the poor. He dwelt with emphasis upon the importance of imitation, especially with a low scale of intelligence, as a factor for good or evil. A's clean room makes B's look dirty and one man's open window is discussed by his neighbour who fastens his own down. He advocated the appointment of health visitors who should act in close coöperation with the medical officer of health but who should take no active part in the administration of relief, although they should be in constant touch with the officers of the Poor-law and with charitable societies. In the discussion which followed there was a general agreement with the views of the reader of the paper, although Dr. J. B. Kaye expressed a doubt as to the willingness of the ratepayer to set up a separate centre for health visiting and cognate work.—Dr. D. S. Davies considered that charitable societies might very well come closer together and work in greater unity with sanitary authorities.—Sir Charles A. Cameron said that already in Dublin there was much useful work done in the direction desired by Mr. Loch, and Dr. Lionel A. Weatherly considered that the coöperation indicated would be of inestimable value in preventing the spread of consumption. He described as a crying scandal the fact that only 23 of the 679 boards of guardians in this country were doing anything to treat people who were suffering from the disease.—In the evening the members of the society and others dined together at the Empire Hotel. Mr. D. Maclean, M.P., gave the members a message from the President of the Local Government Board, in which he attributed the improvement of the condition of the people to the efforts of medical officers of health. In proposing the toast of the society, Mr. Maclean said that he hoped that the Public Health Bill which was now before Parliament and which sought to give to medical officers of health greater security of tenure of office would soon be placed upon the Statute Book.

Death of Gwilym Evans, L.R.C.P. & S. Edin., L.F.P.S. Glasg.

Mr. Gwilym Evans died at his residence, Blaengarw, Bridgend, Glamorganshire, on July 8th, after a short illness, in his forty-third year. The deceased, who received his medical education at St. Bartholomew's Hospital and Glasgow, took the L R.C.P., L.R.C.S. Edin., and L.F.P.S. Glasg. in 1888, and shortly afterwards commenced practice at Blaengarw. He was for the past 16 years surgeon to the Ocean Collieries. He was very popular and was highly esteemed for his generosity to the poor. He took a great interest in educational matters and was for some time chairman of the Ogmore and Garw school board. He leaves a widow with whom much sympathy is felt. The funeral took place on July 11th at Nantymoel, where Mr. Evans was born, and was largely attended.

July 17th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

School of Medicine of the Royal Colleges, Edinburgh.

At a meeting of the governing board of the School of Medicine of the Royal Colleges, Edinburgh, the secretary and registrar, Mr. R. N. Ramsay, reported that the number of students attending the school during the winter session 1905–06 was 1284 and during the summer session 1906 the number was 996.

St. Andrew's Ambulance Association.

The annual meeting of this association was held last week in Glasgow, the Marquis of Breadalbane, president of the association, being in the chair. The twenty-third annual report, which was read at the meeting, shows that during the past year in Glasgow alone the number of calls has been 4396. Out of the total 2708 were cases of accident, while 1688 were cases of illness. In 176 cases the wagons were not required on arrival. Of the 2708 calls to accidents, 866 were from police offices, houses, and stairs; 929 were street accidents, 352 were from public works, 230 from docks and wharves, and 155 from railways and stations. The Royal Infirmary, the Western Infirmary, the Victoria Infirmary, and the Maternity Hospital received 3624 of the total number of cases, the remainder being taken to their homes or other institutions. Owing to the generosity of two Glasgow gentlemen the council of the association has been able to place with the Argyll Motor Company, Limited, an order for a four-cylinder 16–20 h.p. motor ambulance wagon for use in the Glasgow area. This will necessitate increased expense in the upkeep and an appeal has been made to the public for more support.

Dumfries Hospital Dispute.

In connexion with the erection of the new hospital for infectious diseases to be built near Dumfries there has been a good deal of friction between the various parties concerned. The burghs of Dumfries and Maxwelltown some time ago agreed to combine in the erection of a fever hospital. The Dumfries council selected a piece of ground on its own property at Castledykes as the site, and secured the approval of the Local Government Board. Maxwelltown then objected to the situation, being close to Dumfries sewage works, and they were supported in their objections by Dr. J. Maxwell Ross, medical officer of the burgh. A public meeting of the ratepayers of Dumfries was next held, when the site was unanimously condemned and the council was requested to look out for a new site altogether. Finally the town council met and decided to ignore the finding of the public meeting. Last week, however, the town clerk of Dumfries received a letter from the Local Government Board suggesting to the council that it should seek a new site.

Caledonian Medical Society.

The twenty-sixth annual meeting of this society was held last week in Stirling public hall under the presidency of Dr. W. A. Mackintosh of Stirling. There was a representative attendance from both sides of the Border. In his presidential address Dr. Mackintosh dealt with the present position and prospects of the Gaelic language. He referred to the apathy of the Gaels in Scotland in regard to the matter and showed that the only way to prevent the language from entirely dying out was by systematic teaching in the schools. The Scottish Education Department had done a great deal in providing opportunities for learning Gaelic and he hoped that advantage would be taken of these. In the evening the annual dinner of the society was held in the Golden Lion Hotel.

Aberdeen Public Health Committee.

A meeting of the public health committee of the Aberdeen town council was held on July 11th. Letters were read from the British Women's Temperance Association requesting that several copies of circulars and posters issued by the association should be circulated throughout the city bearing the signatures of the Lord Provost, the town clerk, and the medical officer of health. Councillor Kemp spoke strongly in favour of this being done. Councillor Dunn also supported the proposal but the committee could not see its way to grant the application and it was ultimately decided to request the medical officer of health to prepare a circular pointing out the detrimental effects on the health of the citizens of the excessive use of alcohol and to submit the circular to a future meeting of the committee. It was agreed to give effect to a request put forward by the Local Government Board to draw up a circular, to be circulated by medical practitioners and others, with reference to the feeding and treatment of infants by their parents. The sanitary inspector was instructed to appoint two female health visitors in place of the one retired at a salary of £65 or £70 per annum. The committee visited the City Hospital and found everything in good order.

Quatercentenary of the University of Aberdeen.

The subcommittee consisting of the conveners of the several committees having charge of the arrangements in connexion with the celebrations has adopted the following programme subject to the approval of the general committee:—

Tuesday, Sept. 25th.—10 30 A.M.: Service in the chapel at King's College. 2.15 P.M.: Procession to the Strathcona Hall (the temporary hall which is to be erected on the vacant ground in Gallowgate for the accommodation of from 4000 to 5000 persons) 3.30 P.M.: Presentation of the addresses from other Universities and from learned societies in the Strathcona Hall. 8 P.M.: Town council banquet in the Music Hall 8 P.M.: Students' torchlight procession.

Wednesday, Sept. 26th.—11 A.M.: Conferring of degrees in the Mitchell Hall. 2 P.M.: Sports at King's College. 3 P.M.: Reception by the University at King's College. 8 P.M.: Students' ball in the Music Hall. 9.30 P.M.: Reception in the Art Gallery.

Thursday, Sept. 27th.—1 P.M.: Arrival of the King at Marischal College and opening of the new University buildings by His Majesty. 8 P.M.: The Chancellor's dinner in the Strathcona Hall. 9 P.M.: Town council's fireworks display.

Friday, Sept. 28th.—Excursions in the city and neighbourhood in the early part of the day. 9 P.M.: "At home" at Marischal College 10 P.M.: Students' symposium in the Strathcona Hall.

Aberdeen Lunacy Board.

At a meeting on July 10th the chairman said it was gratifying to see that the estimate, compared with last year, for the upkeep of the asylum buildings and plant was lower by £250. It seemed to him that there had been good management on the part of Dr. C. Angus, the medical superintendent, and Mr. Peters, the steward. During the past year they had maintained 419 patients at £10,517. The estimate for 436 patients for the current year was £10 700—£1130 less than the amount paid in 1903 and £1456 less than in 1904 The amount to be raised by assessment for the providing account was £9519, a less sum compared with last year's accounts. The reduction of the tax would in consequence amount to from one farthing to three-eighths of a penny in the pound. He was sorry that Dr. Angus was not with them that night and they hoped he would have a speedy recovery. Dr. Angus deserved their best thanks for his services at the asylum. Referring to the Banff Asylum, the chairman said that in 1868–69—when the buildings were new—the cost for maintenance and providing per patient was £37 13s. 8d.; in 1903–04 the providing account was reduced to £5 12s. 3d., the net cost of both maintenance and providing being £27 8s. 10d. That showed that as time went on there was a tendency, with good management, to reduce the cost of the maintenance of lunatics.

July 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Irish Medical Association.

THE committee of council of the Irish Medical Association held a meeting at the Royal College of Surgeons on July 10th. Seven new members were elected and the following motion was carried:—

> The committee of council strongly urge upon the secretaries of the county branches the necessity to have inserted in the local newspapers extracts from the "Journal" relating to the unions in which the salaries of medical officers have been revised, and all other matter which would seem to improve the condition of the dispensary medical officers.

The Tinned Meat Scare.

The public analyst of Belfast has reported to the public health committee that during the quarter ended June 30th 491 samples have been sent for analysis, a much larger number than can be done carefully and skilfully by one person, and he asks that if the number be continued either an assistant should be paid by the corporation or that allowance should be made for the payment of one. Some of the samples received, such as corned beef, cooked beef, tinned salmon, chicken and veal, &c., are subjects for a skilled bacteriologist, as chemical analysis can do little beyond indicating the presence of preservatives or colouring matter.

Irish Food Factories.

In the annual report of the Chief Inspector of Factories and Workshops for 1905, which has just been published as a Blue-book, there are some startling disclosures relative to the conditions under which workers are employed and the manner in which food products are dealt with. It is reported how little attention is paid to cleanliness in the majority of food-producing places. The bottle-washing rooms, in which empty jam-pots from which it is desirable to remove the dirt and old labels are washed, are not only unsatisfactory from the point of view of the workers in them but would probably very disagreeably impress the customers. The jam, confectionery, biscuit, condensed milk, and margarine factories in Ireland present an alarming state of affairs. The personal cleanliness of the workers is animadverted upon and it is said the matter of cleanliness has received scant attention in many of the Irish factories. The statements made by the inspectors in this Blue-book with reference to the conditions under which work is carried on in Irish food factories are of a very startling and distressing character and they indicate a state of matters which should be remedied at once if the industries referred to in the report are to make any real progress. Altogether, the facts disclosed, if proved, are of a very damaging character and must be dealt with without any delay. The Chicago scare has probably drawn attention to the matter.

County Antrim Infirmary.

From the annual report of the County Antrim Infirmary, just issued, it appears that during the past year 338 intern and 509 extern patients were treated (an increase of 18 of the former and a decrease of 42 of the latter as compared with the previous year). There were 293 accident cases—217 extern and 76 in the hospital, and there were 118 operations. Financially there is a deficiency in the year's working, the expenditure having considerably exceeded the income. The annual expenditure on each patient for drugs and dressings was £4 17s. 7d. and for food £11 12s 10d.

Post-Graduate Lectures in Belfast.

The course of post graduate demonstrations and lectures given by the staff of the Royal Victoria Hospital began on July 16th and a large class is in attendance.

July 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Writing of Scholars.

AT a meeting of the Society of Public Medicine and Hygiene held on June 27th M. Desnoyers read a paper on the above-mentioned subject. He is strongly in favour the sloped style of writing, holding that the upright style only practised by primitive peoples who have but little iting to do. It has also been noticed that sufferers from iters' cramp generally employ the upright style. Two ildren were made to write before the meeting. They were ipped to the waist and although they wrote in the sloping le they kept the upper part of their bodies perfectly aight. M. Desnoyers wished that the authorities should struct schoolmasters to train their scholars in writing so as avoid the risks caused by the bad position of the scholar ilst writing. M. Javal, who some years ago published a ok dealing with the question, did not think that upright iting produced all the evils which were attributed to it. his opinion it was quite natural that a child who began to arn to write by copying should make his first letters right. Later, when he was anxious to write more rapidly, began to slope his writing. M Desnoyers replied that thought it better for a child not to learn two different nds of writing but that he should begin as he meant to ntinue.

Mycetoma of the Dorsum of the Foot simulating Sarcoma.

At a meeting of the Surgical Society held on June 7th a per was communicated by Dr Braukt of Algiers on the llowing case. An Arab, aged 57 years, had a tumour on e dorsum of his foot. The growth was nearly of the size the fist, its consistence, though it varied from time to ne, was generally hard, and it was painless. The tumour as removed and microscopical examination showed that it as a mycetoma. The points of interest in the case were:) the circumscribed form of a tumour which is generally ffused; (2) the fact that it occurred on the dorsum of the ot, whereas mycetoma is almost always on the plantar pect; and (3) the fact that the bones of the foot were ite unaffected, contrary to what is generally found.

Malposition of a United Fracture.

At a meeting of the Surgical Society held on July 4th . Chaput read an account of a case in which there had en a fracture of both bones of the leg and the bones had ited in a vicious position Radiography showed that the acture lay some two fingers' breadth above the lower interticular line. The two fragments of the fibula formed an gle open outwardly, while the upper fragment of the tibia d slid over the internal aspect of the lower fragment. M. aput corrected the deformity by resecting from the tibia conical fragment with its base internal and from the fibula small cylinder of bone. After this reduction was easy and e patient recovered with a straight, useful limb. In the scussion which followed M. Chaput's treatment met with e approval of the meeting.

Saline Baths in the Treatment of Suppurative Tuberculous Arthritis.

At the same meeting of the same society M. Reynier owed a patient on whom he had performed resection of e elbow-joint for suppurative tuberculous arthritis with open wound. Profuse secondary suppuration followed e operation and with the view of curing this M. Reynier nployed saline baths and dressings soaked in saline water. wo arm baths were given per diem lasting for three hours ach. Five or six litres of hot water were used containing rom 50 to 60 grammes of mother liquor from Salies. On he conclusion of the bath the arm was dressed with comesses soaked in a similar solution. This treatment was apidly successful and M. Reynier said that he could not ecommend it too highly as an alternative to resection in hose cases of suppurative tuberculous arthritis where there as an open wound. More especially would he use it in the ase of the elbow-joint resection of which was a grave operaion. M. Quénu took exception to this last remark and did ot consider resection of the elbow joint particularly serious he post-operative suppuration was generally of a mild haracter and the results of the operation were excellent.

French Sanatorium Medical Officers.

There has just been founded at Paris a Society of the Medical fficers of French Sanatoriums. The object of the society s the scientific discussion of tuberculosis with special regard o the working of sanatoriums both public and private. The ociety, which consists of active members only, is open to all anatorium medical officers, whether principal medical officers r assistants. The administrative body is a committee comosed of five members, and the President is Dr. Calmette. Three meetings will be held per annum, two in Paris and the third at some provincial sanatorium.

The Academy of Medicine.

M. Ferdinand Widal was elected a titular member of the Academy of Medicine on July 3rd, in the section of Hygiene and of Legal Medicine, by 67 votes out of 76.

The Old School of Medicine.

In conformity with the report of M. Grébauval, the Municipal Council of Paris has decided to authorise the Prefect of the Seine to grant a 99 years lease to the General Association of Students of the building in the Rue de la Boucherie which was formerly occupied by the School of Medicine. A yearly rent of 3000 francs is to be paid by the association. The association also undertakes to restore those portions of the building which are of historical interest.

Compliments to Professor Pozzi.

On Sunday, July 8th, the friends of Professor Pozzi presented him with a medallion, a true work of art by Chaplain, and a special copy (*livre d'or*) of a book containing unpublished articles upon questions of surgical gynæcology. The ceremony took place in the theatre of the Pasteur annexe of the Broca Hospital. Dr. Debove, Dean of the Faculty of Medicine, presided and made the first speech. He was followed by Professor Renaut of Lyons, Dr. Dartigues, head of the clinique at the Broca Hospital, Dr. Jayle, the secretary of the committee, and Dr. Monprofit. Professor Pozzi then rose, and having thanked M. Clémenceau, the Minister of the Interior, who was present at the ceremony, he reminded his audience of the fact that M. Clémenceau, who is a Doctor of Medicine, had himself obtained a gold medal from the faculty. He then referred to the history of the chair of gynæcology and conveyed his thanks to his pupils and all those who had been associated with him in the work of this chair. Dr. Debove then presented Professor Pozzi with the medallion amidst loud applause.

The Responsibility of the State for Hygienic Deficiencies in Government Offices.

The Conseil d'État has just given a most important judgment with regard to the responsibility of the State in the matter of hygiene. A post-office official who had arrived at Bastia in perfect health developed in a few years symptoms of tuberculosis and died in 1903 from tuberculous bronchitis. His widow demanded a pension. She was refused as her late husband had not reached the age limit necessary for a pension by law. The widow therefore appealed to the Conseil d Etat, saying that her late husband had been placed in an unhealthy office where he was constantly in contact with a tuberculous clerk and that two clerks who had worked in the same office before him had both died from tuberculosis. She quoted the law which gives widows of those who die from grave accidents incurred in the performance of their duties a pension, and she argued that a disease arising from definite circumstances connected with abnormal conditions in the service should be considered as a serious accident. The Conseil d'Etat coincided in this view and the widow was awarded her pension.

July 17th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

"*Flagrantis atrox hora Caniculæ.*"

WE are nearing the dog-days. Sojourners from the British Isles—all, in fact whose constitutions are built on northern lines—have hastened to put the Alps, or the "watershed," as the Americans call them, between themselves and the Italian sun. Not that there are not shady nooks at high altitudes even in Central Italy where the great heat may be avoided. The "Tuscan Switzerland," as that special chain, or rather network, of the Apennines is called, abounds in such places of refuge. Take, for example, Camaiore in the province of Lucca. "There," as a correspondent of British nationality tells me, "you are surrounded by quite imposing mountain peaks which, so near the Mediterranean, have as grand an appearance as the Swiss Alps. We can, and generally do, spend the whole day out of doors and feel greatly invigorated by the change. It seems impossible that we are only one and a half hours' drive from that Sahara Viareggio! It blows a keen, cool N.W. or S.W. wind every day from 9 A.M. till sunset, and the solar rays cannot pierce the dense umbrage of the ilex trees on the grassy terrace. We are not nearly so high as at Barga (the Della Robbia country above Bagni di Lucca) and yet we are always cool—even cold at times—while at Barga, from its being shut in by mountain walls, the heat is often stifling. Looking through the screen of cypresses and across the valley I see a grey old church-tower whose silvery bells fall pleasantly on the ear at matins and at Ave Maria, as their tones come wafted from the mountain opposite—quite conducive to quiet work or 'studious musing,' till it is time to seek repose in the spacious dormitory with its windows all night wide open." All the same, while once in a way such a resort is for British subjects a delightful escape from the sultry lowlands, it is not bracing enough if repeated from year to year. Many an English-speaking family, after spending the summer annually at Vallombrosa, for instance, have found that something more than cool shade at 3000 feet above sea-level is required if you would avert premature break-down. Climatic change is necessary for such constitutions—in proof of which we have the testimony of British residents in Italy who, summer after summer, have made their *villeggiatura* at Airolo on the Italian side of the St. Gothard tunnel and yet felt their vigour deteriorating till they bethought them of trying Göschenen, on the Swiss side, when they immediately felt they had "changed for the better." Meanwhile, the approach of the dog-days has inspired a stampede from all the chief Italian cities, especially from the capital and from its sultriest quarter, the Vatican, whence the *pezzi grossi* or leading functionaries, have already gone to seashore or hillside as a welcome escape from daily service in the Cappella del Coro, with its monotonous chanting, or from the various offices, open as they are for two or, at most, three hours per diem and not all the week through. The Cardinal Secretary of State starts for Castel Gandolfo, on the Alban hills, leaving the Holy Father to face the heat in the Apostolic Palace, some 2000 feet lower on the least healthy of Roman hills. His Holiness continues to give audiences, but to very few at a time, his health, though somewhat improved, indicating need of rest and relaxation from official cares. He has resumed his daily promenades in the Vatican demesne but while in the first few months of his pontificate he would take long walks on foot in the well-shaded alleys he has now to resort to his carriage, whence he alights for a little to converse with the more intimate of his suite but returns to it not unwillingly after covering a few hundred yards. "Happy you," he said the other day, "who can go where you like. Go, go, and get as well as possible. When you come back you will certainly find me here."

"*L'Insidie alla Vita.*"

"Life's Enemies in Ambuscade," as the above may be rendered, is the title of a very scientific, very attractively written, and very opportune volume, addressed to Italian heads of families and to the educated people of Italy in general. Its lady writer is Dr. Teresita Ruata, assistant to the professor of materia medica in the University of Perugia, on whose medical staff her father has long held a distinguished position, apart from his extra-professorial work in literature, particularly on public health. Miss Ruata sums up the most recent and most scientifically accredited findings of pathological and clinical medicine and brings them home to the appreciation of the lay reader with a clearness of exposition and occasionally with a dramatic force that never fail to satisfy and to sustain the interest which it evokes. Italian literature comprises no better account in such brief space of, for instance, the "opera benefica" of Lord Lister or of the prophylaxis or treatment (if not of the etiology) of malaria associated with the names of Manson and Ross. After the "insidie" of life Miss Ruata proceeds to enumerate the processes and the means of "alimentazione" and illustrates the disastrous results of their systematic or even occasional infringement by such retributive visitations as, for instance, pellagra, on which she gives succinct but quite sufficient and impressive information. The book,[1] with its pictorial illustrations as a help to the letterpress, is not bulky and well deserves perusal on the part of English-speaking residents in Italy, for whom it has recommendations and warnings hardly less opportune than for the Italian public to whom it is primarily addressed.

July 15th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Cholera.

THE Public Health Department has now published in book form a collection of decrees and regulations which have been issued during the last ten years as a useful guide to those in charge of measures which will be taken against the spread of any future outbreak of cholera. It is hoped that the book will be carefully studied by all public health inspectors in the country districts, so that they may be aware what measures can be taken promptly and without confusion. It is, of course, not intended to discourage initiative but rather to point out the lines upon which previous experience has shown that the most satisfactory results can be obtained. The great success which Egypt has attained in the stamping out of epidemics of both cholera and plague during recent years is due to the fact that when the country is declared to be infected stringent laws at once come into force which could not be submitted to in normal circumstances. For instance, in large towns when cholera has been declared all fairs are prohibited, insanitary dwellings are whitewashed inside (the Egyptian, unless controlled, prefers to whitewash the outside only of the house), street sweepings are burned outside the town instead of being preserved for heating the public baths, medicines for diarrhœa are distributed free, cesspools are emptied and disinfected, while the latrines of mosques or other buildings which are considered dangerous to public health may be closed, and a portion of the cemetery is chosen for the burial of those who have died from cholera and is used exclusively for this purpose. But the most important regulation refers to the prevention of pollution of the water-supply; local regulations regarding the mooring of boats, drawing of water, washing of clothes, and watering of animals must be strictly enforced by the police, while frequent inspections must be made and special attention paid to mineral water and beer factories. Stables and cow-sheds in an insanitary condition may be temporarily closed if they are considered dangerous to public health. In order to encourage the drinking of pure water stand-pipes should be erected in various parts of any town which possesses a water-supply laid on by pipes, while arrangements should be made with the water companies to keep their workmen on the premises, they should not be allowed to walk about the town, and should be inspected daily by a responsible person before going to their work. Every water-carrier should be obliged to bring his goat-skins or water-cart to be disinfected, the former by 2 per cent. sulphuric acid and the latter by steam; every skin and cart should be stamped after disinfection and no one should be allowed to fill a skin or cart at the stand-pipes unless it bears the Government stamp. All schools may be closed, as also public baths, drinking fountains, and the ablution tanks of mosques. The various regulations are drawn up in a simple and practical way and are supposed to be carried out by the local sanitary commission, but it is needless to say that all success will depend upon the constant presence of the English inspectors of public health. Great stress is laid upon the importance of early recognition of the disease and the headmen of villages are to be informed that suspicious cases of sickness should be at once removed to some temporary shelter outside the village without waiting for the arrival of the public health officials. This is almost too much to expect from sheikhs who cannot see the importance of keeping their water-supply free from the contamination of human excrement, but in another generation education will work wonders. It is quite a mistake to suppose that any Egyptian prefers to drink polluted water, though he is quite content to do so if no pure supply is at hand. In order to obtain specimens for bacteriological examination, which is all-important in the early diagnosis of imported cholera, boxes containing a corked test tube with wire and cotton-wool are supplied by the Central Administration and as it often happens that the earliest cases of cholera are not seen until after death the sterilised cotton-wool should be introduced into the rectum of the suspicious case, and after having been allowed to absorb sufficient discharge it should be placed in the sterilised test-tube and forwarded immediately to the Government bacteriologist. Necropsies are only permitted in very exceptional cases. Among sonal precautions the officials are warned to pay special ention to the necessity of carrying a supply of boiled nking-water for themselves and to be provided with a ution of corrosive sublimate for washing their hands. It difficult to over-estimate the importance of isolating sick when undoubted cases of cholera have occurred. e patient, if alive, should be removed to hospital while house and all people who have been in contact with him ust be disinfected, while if the patient is already dead body must be washed with corrosive sublimate and ried in the special quarter of the cemetery in a shroud aked in sublimate solution. Cases are allowed to be ated in their own houses provided isolation can be iciently maintained. Special instructions are issued with gard to the disinfection of clothing, drinking vessels, and ells, and rules for nurses, railway officials, and river police e laid down.

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[1] Dott. Teresita Ruata: Insidie alla Vita, one vol., pp. viii.–224. Torino: Unione Tipografico-Editrice, 1906.

Bacteriological Report from the Tor Quarantine Camp.

Dr. F. Gotschlich has now issued his annual report hich confirms last year's report in one interesting way. s in 1905, there was a complete absence of cholera among e pilgrims returning from the Holy Places, but again two cases the comma bacillus was found. He examined e fæces of 127 pilgrims in hospital for various kinds disease and in 18 vibrios were found, always from ases of dysentery or colitis and never in a single stance from an individual whose intestines were normal. nly two of the 18 cases, however, gave a specific reaction ith cholera serum obtained from Berlin at a dilution of in 2000; the other 16 cases gave no reaction at all, even ith a dilution so strong as 1 in 50. This year's bacillus lso gave a perfect serum reaction with those found at Tor ast year. The two suspicious pilgrims came from Asia and ere neither of them natives of Egypt. It has long been nown that various epidemics of cholera have been associated with comma bacilli which do not correspond in every etail with Koch's bacillus, and it is evident, as Metchnikoff as stated, that the cholera vibrio is one of the most pleomorphic of all organisms. Dr. Crendiropoulo, the director f the quarantine laboratory in Alexandria, has just ublished an interesting report on the subject of the ifferential diagnosis of vibrios. He concludes by expressing his belief that in order to classify a vibrio very biological test must be applied, for agglutination and Pfeiffer's reaction by themselves are not enough for dentification. His paper is based on the examination of 42 cases, mostly choleraic or dysenteric, obtained from India, Egypt, and Europe. Only 18 of the 42 bacilli were agglutinated by an undoubted cholera serum. Dr. Zirolia, director of the quarantine laboratory at Port Said, has also reported on six vibrios isolated from the water-supply of ships. He examined altogether 384 samples and found vibrios in water from 82 ships but in only six was there a positive agglutination with the Berlin cholera serum. All these six vibrios were pathogenic to guinea-pigs but not to pigeons. These workers have been greatly stimulated by the encouragement of their chief, Dr. M. Armand Ruffer.

July 12th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Death of Dr. Mary Putnam Jacobi.

THE profession of medicine in this country has lost a prominent member in Dr. Mary Putnam Jacobi whose death has just been announced. The late Mary Putnam was born in London, England, on August 31st, 1842, and was a daughter of George P. Putnam, a well-known New York publisher. She studied medicine at the Woman's College, Philadelphia, the New York College of Pharmacy, and the École de Médecine in Paris where she had the honour of being the first woman admitted to medical classes. She graduated in Paris in 1871 and in 1873 married Dr. Abraham Jacobi, the distinguished New York physician. She was the first woman member of the New York Academy of Medicine and served for 12 years as a dispensary physician to Mount Sinai Hospital. For ten years she was a professor in the Woman's Medical College, and subsequently for three years a professor in the New York Post-Graduate School of Medicine. Her essay on "The Question of Rest for Women during Menstruation" won the Boylston prize at Harvard University, Boston, Massachusetts. She was, indeed, an author of recognised ability and some of her works were: "The Value of Life," "Cold Pack and Massage in Anæmia," "Hysteria," "Brain Tumours," "Studies in Primary Education," and "Common Sense Applied to Woman Suffrage." These and multiple essays and articles in the medical and lay press made her an author of more than national repute.

Yellow Fever.

Several cases of yellow fever are reported at Ship Island, the quarantine station of the coast of Mississippi in the Gulf of Mexico. They were on the s.s. *Whitehall*, from Colon, isthmus of Panama. The steamer had taken a cargo of lumber there. Colon is a foul and pestilential spot. Yellow fever has been endemic there for many decades. The news regarding these cases developed as the result of an inquiry by President Irion, of the State Board of Health, Louisiana, sent recently to Dr. Hunter, State health officer of Mississippi. In reply to President Irion Dr. Hunter said that he had no knowledge of any cases but would make due inquiry. Later he telegraphed to President Irion as already set forth. It is known here that several cases of yellow fever have occurred in that ancient hot-bed of the disease, the city of Havana. The results of the reports made by the commission sent by the *New York Herald* to Cuba, 1904 and 1905, have been the very unusual and energetic action in cleaning the city of Havana, with its foul *patios*, or court yards. With an increase of high summer temperature in the Southern United States the student of yellow fever will expect new cases, or the usual echo after a year of an epidemic such as visited New Orleans and its vicinity last year.

The Insurance Scandals.

Dr. Walter R. Gillette, a former medical director of the Mutual Life Insurance Company of this city, and, until recently one of its vice-presidents, has just been indicted by the Grand Jury. Six counts were alleged against him for perjury and forgery. He will be tried in September next with his fellow vice-president, Mr. Robert A. Granniss. Dr. Gillette is a Fellow of the New York Academy of Medicine and physician to several hospitals.

July 10th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Board of Scientific Advice.

THE Board of Scientific Advice, established in 1902 under the enlightened rule of Lord Curzon, has already attained considerable reputation for scientific investigations. Its reports are communicated to the Royal Society, which by an advisory committee furnishes the board (here in India) and the Government with suggestions. A recommendation is made to the Government of India to increase the superior staff of the Geological Department partly for the purpose of additional surveys and partly for economic investigations. Another line of investigation is in the botanical exploration of areas not yet investigated, and more especially for providing separate floras of the various provinces. The board further recommends that the physiological investigations into the nature and cause of lathyrism should be continued. Other investigations, contemplated refer to the movements of glaciers, the discharge of silt from Indian rivers, experiments for the improvement of cotton, and experiments in growing flax.

Opportunities for Medical Research.

Some very admirable suggestions for facilitating research works have recently been put forward by the sanitary commissioner with the Government of India, but unfortunately the Government puts difficulties in the way of officers willing to take advantage of the laboratories either for instruction or for original investigations. Colonel Leslie refers to the want of officers sufficiently skilled to carry out investigations regarding malaria, kala-azar, Delhi boil, and more particularly dysentery and suggests that a limited number should be deputed to the laboratories. The Government accepts the proposals for certain officers of the Indian Medical Service, but the application of an officer has first to be backed by the sanitary commissioner, then it has to be submitted to the Director-General, and then to the local government (to decide when the officer in question can be spared from his ordinary duties). No deputation allowance will be given and the officer will lose any allowances which he receives for local duties. This is poor encouragement to individual officers and the further pronouncement of Government that no addition to the sanctioned strength of the Indian Medical Service is contemplated on account of officers studying at a laboratory shows the indifference which exists to the higher study of Indian diseases. This is shortsighted policy and Indian civilians have yet to learn that it is only by scientific medical research that even the expenses of jails, asylums, and other public institutions will be reduced, to say nothing of the lessened mortality and the better treatment of disease.

The Plague Epidemic.

The plague epidemic has subsided to such comparatively small proportions that the mortality excites but little interest Only 7660 deaths were recorded for the whole of India during the week ending May 26th. In Eastern Persia, however, the disease continues and shows no sign of abatement and the announcement has this week been made that Jeddah is an infected port and that the plague regulations will be enforced against vessels arriving from that port Statistics covering the period since plague was first reported in 1896 give the following yearly records of mortality.

1896	1,701 deaths.	1901	273 679 deaths.
1897	56,055 "	1902	577,427 "
1898	118,053 "	1903	851,263 "
1899	133,789 "	1904	1,022,299 "
1900	93,150 "	1905	950,863 "

In the present year about 170,000 deaths have been recorded up to the end of April, which gives a grand total of 3,729,000 since 1896. Even this is under the mark, and probably 5,000,000 would more correctly be the death roll. An experiment of considerable importance has recently been made to the effect that the ordinary disinfection by acid perchloride of mercury is ineffective against the rat flea Even a 1 in 500 solution fails to kill fleas except after prolonged immersion, but izal and analogous bodies are successful after short periods.

The Strike of Students at Lahore.

The strike of the Lahore medical students still continues and they have apparently had no reply to their representations. Some 35 out of 260 have returned to the college and have been readmitted. The latest move was a large public meeting, at which an executive committee was appointed for the purpose of laying their grievances before the Lieutenant-Governor. Their chief complaint seems to be against the menial work that they were compelled to do which they considered unnecessary and degrading. Their feelings have been hurt by their repeated representations on this and other matters not being attended to.

The Jails in Bengal.

The report on the jails of Bengal for the past year shows the average prison population of the province to have been 14,934 These were quartered in 35 principal jails and 67 subsidiary jails. The death-rate rose to 25·3 per 1000 from 19 5 of the previous year, which was the lowest on record. For 1904 the rate at Balasore was over 40 per 1000, but this year under a new superintendent it has fallen to 22 6. In four jails this year, however, the rate is over 40 per 1000: Burdwan at 43·3, due partly to floods which invaded the compound but chiefly to overcrowding; Purulia at 46·6 per 1000 where the main barracks are radically defective; Midnapore at 45 per 1000, which is always above the average; at this jail the prisoners are said to be always admitted in bad health, but serious defects in the barracks exist; and Charbassa, at 44·1 per 1000, but which has only a small prison population. The report shows the great prevalence of pulmonary tuberculosis in the province and the Inspector-General suggests utilising Berhampore jail for cases of pulmonary tuberculosis only. Overcrowding is reported in 16 jails. There seems to be great discontent among the warders as 1280 punishments were inflicted on them and 82 resigned. Deficient pay and illiberal rules regarding sick leave are the chief complaints.

The Water Scare in Calcutta.

The water scare in Calcutta has not been allayed by subsequent inspections of the three town reservoirs. Cracks in the masonry have been observed in all of them and percolation of subsoil and probably other foul waters is certain. The ensuing monsoon will test the matter more severely but it cannot be denied that at the present moment the water-supply of the whole city is liable to serious contamination. Like most places in India Madras has its difficulties and dangers in regard to the filtration of water. A new scheme is under discussion which is estimated to cost 35 lakhs, towards which the Government will assist with 14 lakhs. The balance will have to be met unfortunately by increasing the water tax and drainage tax to the maximum.

June 9th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

A FRESH case of bubonic plague has been reported from Subiaco, a suburb of Perth, West Australia. The man was working in the centre of Perth. In Sydney no further cases have occurred. About 2300 rats are killed weekly and of these some 800 are carefully examined at the Board of Health laboratories. Since April 18th only one rat has been found to be infected with plague. It was taken in the block of buildings in Clarence- and Kent-streets, where the last cases of plague in the human subject occurred. A thorough search in the vicinity of the premises in Alexandria, where a patient who died from plague had lived, showed that the rats had fled—only a very few were caught and none was plague-infected. Some of the properties, however, were in an insanitary condition. Dr. J. Ashburton Thompson, President of the Board of Health of New South Wales, has received an invitation from the American Medical Association to visit Boston and to deliver an address on Plague. He is unable to attend but has forwarded an address. Dr. Thompson has always taken the view, based on the observations and experiments made in Sydney, that fleas were essential to the communication of plague from rats to man, a view confirmed by the Indian commission's experiments.

Report of the Board of Health of Victoria.

A rather belated document has been published by the Board of Health of Victoria. It is a report for seven years up to December, 1904. It is almost entirely statistical. It is stated that the need for federal action in connexion with quarantine and the prevention of the introduction of exotic disease has been frequently illustrated during the period under review, but nothing has been done except the holding of a conference in 1903 of representatives of the health authorities of the several States. A report was drawn up but no action was taken. The striking immunity which Victoria has had from plague is ascribed to the preventive measures adopted by the Board and the loyal coöperation of municipal and shipping authorities. The urgent need for extending activities in preventing tuberculosis is affirmed, especially by extensive improvements in the sanitary conditions of the poorer classes.

Pure Food.

Under the Pure Food Act of Victoria the Board of Health is empowered to make regulations for "securing the cleanliness, freedom from contamination, and adulteration of any article of food or drug, or other article, substance, or compound; and for securing the cleanliness of receptacles, places, and vehicles used for the manufacture, preparation, storage, packing, carriage, or delivery of any article of food or drug, or other article, substance, or compound." The following regulations have been made:—

> 1. No person who sells bread or meat, and no employee of such person, shall receive into any place or vehicle for the reception or storage of bread or meat for sale any bread or meat which has been returned after delivery at any house. 2. No person who sells bread or meat shall use or cause to be used as a material for casing, covering, enclosing, or packing bread or meat for carriage or for sale any second-hand paper or any newspaper, or part of a newspaper, or any paper or substance on which there is printing which can come into contact with the bread or meat.

And with regard to milk, cream, butter, cheese, cooked meats, bread, pastry, confectionery, honey, jam, and other articles of food to which flies are attracted and which are ordinarily consumed in the condition in which they are purchased—

> 1. Any person who sells on any retail premises (including cafés, restaurants, and licensed premises) any of the above-named articles of food in other than sealed packages shall, as far as practicable,

otect such articles of food from dust and flies by storage in covered ceptacles, or by means of metal covers or wire gauze screens, or her effectual appliance. 2. No person shall transport through the reet for sale any of the above-named articles of food, unless the me is properly protected from dust and flies. 3. Any person using y vehicle for the storage or exposure for sale in the street of any uit shall, unless the fruit is otherwise adequately protected from st, provide and fit to such vehicle close fitting screens on every side cept that from which the fruit is removed for sale.

he use of preservatives in food has also engaged the attenon of the Board which desires to place the public in a osition to know where they stand in regard to the articles f food which they consume. As the application of scientific ethods of manufacture becomes more general, it is regarded s indubitable that the use of foreign preservatives will be educed to a minimum. In the meantime, however, the Board has found it advisable to frame the following regulaions, which it is proposed shall be enforced on and after Dec. 31st the penalty for infraction being £10:—

1. To every article of food mixed with a preservative substance, and to very article of food mixed with any foreign colouring matter, or to ny wrapper or receptacle containing any such article so mixed, there hall be attached a label distinctly and legibly written or printed and etting forth (a) the nature and amount of such preservative subtance; and (b) the nature of any foreign colouring matter mixed with uch article of food. This regulation shall not apply to confectionery nor to the long used, well known condimental preservative substances—viz., common salt, sugar (sucrose or saccharose), spices, wood smoke, and vinegar; nor, as regards wine to the substances allowed under Section 25 of the Pure Food Act, 1905.

Provision is also made for the attachment of a label setting forth in a legible manner the quantity of preservative contained in every pound or pint of the article of food sold. It is further provided that the word "pure" must not be used to describe on the label any article of food not true to name, of standard composition, strength, purity, or quality, or which is mixed with any foreign substance.

Lunacy Reform in Victoria.

The Victorian Ministry has been considering the recommendations of the Inspector-General of the Insane, Dr. Jones, for improving the asylums. It has been decided to build a hospital for acute cases in the metropolitan district, providing for 125 patients, with a special staff. It is estimated to cost £30,000 to build. It was resolved to spend £9000 on reception houses at Ballarat, Warrnambool, and Sale, and in renovating the existing receiving house at Bendigo. All the existing county asylums are to be renovated. The present staff of untrained temporary attendants in the various asylums is to be replaced by a permanent trained staff who will begin as probationers. It was not finally decided whether any amending legislation should be introduced or what should be done with the new asylum.

Treatment of Inebriates.

The Chief Secretary of New South Wales has received a report from the Inspector-General of Charities and the Director of Labour as to the suitability of Rabbit and Milson Islands for the establishment of inebriates' homes. As has been previously mentioned, buildings for the purpose, costing £13,000, have been erected on Rabbit Island but not used. The report states that the islands form ideal situations for the proposed institutions and the land could be utilised for agricultural purposes, though the area on Rabbit Island is very small. It is considered impracticable to have two classes of patients, one paying and the other not.

Treatment of Epileptics.

The council of the epileptic colony in Victoria has had great difficulty in securing a suitable site, but the difficulty has been settled by the gift of some property at Clayton by Mr. J. Mason. It consists of 174 acres of particularly good land and the situation is regarded as very suitable.

Prevention of Tuberculosis.

A large and representative deputation waited on the Chief Secretary of New South Wales on May 23rd to urge that further precautions should be taken to prevent the spread of pulmonary tuberculosis. It was desired that notification should be enforced and more accommodation provided for patients in the advanced stages of the disease. The Minister gave a sympathetic reply and said that the matter would be considered by the Cabinet.

Sight and Hearing Tests on the Railways.

In accordance with the decisions of the Inter-State Conference of Railway Commissioners, held some time ago, new scientific tests for sight and hearing, uniform in standard, have been adopted in the railway service of the different States and the various employees have undergone examination by experts. In New South Wales the result has been that many men (30 per cent.) could not pass the tests and it was said that some of the best men were in consequence degraded and hardly treated. A deputation of 30 Members of Parliament waited on the Premier on May 17th to ask him to urge on the Commissioners the necessity of reverting to the old system of practical tests instead of Holmgren wools, acoumeters, and test-types. The Premier replied that he could not control the Commissioners but would place the views of the deputation before them. Subsequently, on May 28th, delegates from the Amalgamated Railway and Tramway Service Association interviewed the Railway Commissioners and asked for the abolition of the acoumeter test and the wool test; a modification of the card test; a proviso to the lantern test to enable an employee to appeal for a practical test; that sight and hearing tests should only apply to those connected with the safe working of trains; and that those who had already failed should have an opportunity of being re-tested under the modified conditions proposed by the association if adopted. Instances were given of a man who was absolutely colour blind being able to pass a wool test, and of another being able to pass a colour test without having any sense of comparison in the matching of the shades of a colour. The Commissioners agreed to abolish the acoumeter test and stated that orders would be given to substitute the voice test. They agreed, too, that sight and hearing tests should only apply to those connected with the safe working of trains, or to those likely to be promoted to positions connected with safe working. They also said that if modifications were decided upon opportunities would be given, on appeal, for re-testing under the modifications. The other proposals will receive consideration.

June 3rd.

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

M.S.—Thomas Percy Legg, King's College and St. Bartholomew's Hospital; William Paynter Neall, Royal Infirmary, Manchester, and London Hospital; and William Gordon Taylor, B.Sc., Middlesex Hospital.

D.Sc.—Alfred Walter Sykes, M.D., B.S., St. Thomas's Hospital, University of Marburg, and Laboratories of Examination Hall and Queen Charlotte's Hospital.

UNIVERSITY OF BIRMINGHAM: FACULTY OF MEDICINE.—The following is a list of the successful candidates at examinations held in June:—

I. Degree of Doctor of Medicine.—Thomas Webb Fowler, Robert Beeston Dennis Bird, and Alfred Ernest Remmett Weaver.

II. Degree of Master of Surgery.—(a) Official: Frank Marsh. (b) Under Ordinary Regulations: Class I.: Alex. Wathen Nuthall.

III. Degrees of Bachelor of Medicine and Bachelor of Surgery.—(a) Past Students of Birmingham Medical School.—Class II.: Frank Newstead Deakin and Charles Henry Maskew. (b) Under Ordinary Regulations.—Class II.: Reginald Hudson Astbury, John Staines Austin, Arthur Cecil Hircks, Claude Johnson, Harold Bruce Jones, and Walter Rowland Southall Roberts.

IV. Fourth Examination for the Degrees of M.B., Ch.B. Class I.: James Fenton, Arthur Addison Sanders, and Francis Brett Young. Class II.: Edward James Boome, Henry Neville Crowe, Eric Thomas Gaunt, John Kennedy Gaunt, Philip James Mason, Nevill Coghill Penrose, Arthur John Smith, Rupert Wesley Thompson, and Norman Valentine Williams.

V. Third Examination for the Degrees of M.B., Ch.B.—Part I.: Pathology and Bacteriology.—Class II.: John Adams, Charlotte Bailey, John Dale, George Henry Chavasse Mold, David Priestley Smith, and Edward Vernon Whitby. *Part II.: Materia Medica and Pharmacy.*—Class I.: John Adams, John Dale, Harvey Atkins Evans, and Edward Vernon Whitby. Class II.: Charlotte Bailey.

VI. Second Examination for the Degrees of M.B., Ch.B. Class II.: Walter Charles Blackham, Norman Alexander Bissell, Harold Gordon Browning, Humphrey Francis Humphreys, Violet Maud McCready, Cranston Walker, and Kenneth Douglas Wilkinson. Passed in part of the examination: James Henry Bampton (anatomy and comparative anatomy), John Selwyn Edwards (anatomy and physiology), Carl Euclid Molino (anatomy and physiology), Ethel Annie Wellman (anatomy and physiology), Harold Arthur Whitcombe (anatomy and physiology), and Henry Wilks (anatomy and comparative anatomy).

VII. First Examination for the Degrees of M.B., Ch.B.—Class II.: Eric Walter Assinder, Oscar Madeley Holden, Elizabeth Stephens Imrey, Lionel Gilbert Jordan, Ronald Douglas Nelson, and Henry Richmond.

VIII. Degree of Bachelor of Dental Surgery.—Class I.: William Bowater.

UNIVERSITY OF LEEDS.—At a Congregation of the University which was held at the medical school buildings on July 13th *Professor Smithells*, as Pro-Vice-Chancellor, conferred the degrees of Bachelor of Medicine and Bachelor of Surgery on the following candidates who had passed the recent examination:—

F. G. Dobson, E. R. Flint, S. R. Gloyne, J. J. Hummel, and F. E. Kendall.

The following pass lists are issued:—

Second M.B. and Ch.B. Examination.—Part I.: W. H. Brown and J. B. T. Keswick. Part II.: C. S. Brown, J. P. Musson, A. Riley, C. G. K. Sharpe, W. Shaw, R. E. Smith, and J. N. L. Thoseby.
Final M.B. and Ch.B. Examination.—Part I.: W. L. Dibb

ROYAL COLLEGE OF SURGEONS IN IRELAND.—*The following prizes were awarded for the summer session.* Barker anatomical prize (£31 10*s.*): P. G. M. Elvery. Carmichael scholarship (£15): C. Greer. Gold and silver medals in operative surgery: gold, D. Adams; silver: R. M. Bronte. Stoney memorial gold medal in anatomy. G. S. Levis. Practical histology: R. Adams, first prize (£2) and medal; and O. W. J. Wynne, second prize (£1) and certificate. Practical chemistry: J. J. Lyons and P. I. Wigeder (equal), first prize (£2) and medal. Public health and forensic medicine: T. O. Boyd and C. T. Callimore (equal), first prize (£2) and medal. Materia medica: J. J. Lyons, first prize (£2) and medal; and H. W. White, second prize (£1) and certificate. Biology: H. D. Gasteen, first prize (£2) and medal; and J. S. Pegum, second prize (£1) and certificate. The lectures of the winter session will commence on Monday, Oct. 15th.—The Barker Anatomical Prize for 1907, of the value of £21, is offered for competition and is open to any student whose name is on the anatomical class list of any school in the United Kingdom. The preparations entered must be placed in charge of the curator on or before April 30th, 1907. The prize is offered for a dissection showing the viscera in relation with the abdominal surface of the diaphragm. The relations of the common bile-duct, which should be seen opened up along its entire length, are to be retained fully. The conditions under which the competition is to be carried out are as follows:—1. The preparation must be sent to the Curator of the Museum of the Royal College of Surgeons in Ireland, each being marked with a fictitious signature and accompanied by a sealed envelope bearing outside the same signature, and containing within, (*a*) the full name of the competitor, and (*b*) a declaration to the effect that the work of the preparation has been carried out by himself. The printed form necessary for this declaration can be obtained on application to the Curator. 2. The dissections are to be mounted in vessels fitted with glass covers, but the covers must not be sealed down. Earthenware basins and plaster-of-Paris settings are not compulsory if the specimens can be better displayed and preserved by other means. 3. No prize will be awarded unless sufficient merit be shown, 70 per cent. of the total marks being the minimum. The following is the scale of marks: (*a*) for the merit of dissection, 60; (*b*) for excellence of setting, 20; and (*c*) for originality, 20—total, 100. Those dissections for which prizes are awarded become the property of the College. 4. Those competitors who enter dissections for which prizes are not awarded but which show sufficient merit may be refunded such amount of the cost of production as the examiners deem fit. 5. The cost and risks of transport must be borne by the student. The College will not be responsible for any damage the preparations may sustain, but those of unsuccessful competitors residing at a distance will be carefully repacked and handed to the carriers for delivery at such address as may be specified by the student.

A CONGRESS OF CHILD STUDY.—A congress will be held in Berlin from Oct. 1st–4th under the presidency of Professor W. Münch for the purpose of discussing child study and matters connected with the care of children. In the mornings of each of the four days addresses will be given to the whole congress by selected lecturers. The afternoons will be devoted to the meetings of sections, of which the first deals with anthropology and psychology, the second with psychology and pedagogy, and the third with social and philanthropic endeavour. Among the subjects for discussion the following may be mentioned: the scientific examination of the capacity of children; the association of ideas in normal and defective children; the care of children just released from school attendance; the importance of open-air instruction in mathematics and natural science; sleep among the public school population of Berlin; and the importance of manual training in the education of defective children. An exhibition of materials which have been collected to form the nucleus of a German museum of education and child study will also be held. The exhibits deal with physical instruction, the hygiene of normal and defective children, teaching materials, school buildings, and equipment. A series of drawings by young pupils will also be shown. The contribution of five marks constitutes membership and entitles the member to attend all lectures and to a report of the proceedings. The secretary of the congress is Professor Moritz Schäfer, Berlin, N.W., Klopstockstrasse 24, from whom detailed programmes can be obtained.

UNIVERSITY OF LIVERPOOL: DEGREE CEREMONY.—The ceremony of conferring honorary and other degrees in connexion with the University of Liverpool took place on July 10th at St. George's Hall. The Chancellor (the Earl of Derby, K.G.) presided and amongst others present were the Lord Bishop of Liverpool, the Right Hon. Charles Booth, Mr. E. K. Muspratt (Pro-Chancellor), Principal A. W. W. Dale (Vice-Chancellor), the professors and staff of the University, and several mayors of surrounding boroughs. Dr. Peace, the city organist, contributed selections on the organ during the assembly of visitors and students. The Chancellor, in his address, alluded to the continued prosperity of the University and said that it was his agreeable duty to confer the degree of LL D., *honoris causâ*, upon the Right Hon. Charles Booth, P.C., F.R.S., D.Sc., D.C.L. The recipient was one whose life had been spent for the benefit of mankind. Professor Gonner, in presenting Mr. Booth, alluded to the great work accomplished by him in dealing with social and economic questions in London, in the organisation of dock labour, in the Poor-law, and in old age pensions. The Chancellor then formally admitted Mr. Booth amid cheers. Mr. Booth made a suitable acknowledgment of the honour conferred upon him. William Savile Henderson and Frederick P. Wilson, graduates of the Victoria University of Manchester, were admitted to the degree of Doctor of Medicine in the University of Liverpool. David Moore Alexander, James Leonard Hawkes, Gerald Joseph Keane, Robert Edward Knowles, Richard Howard Mole, and Herbert Francis Wolfenden were admitted to the degree of Doctor of Medicine. Wilson Bell, Charles William Budden, and Charles Owen Jones, graduates of the Victoria University of Manchester, were admitted to the degrees of Bachelor of Medicine and Surgery in the University of Liverpool. Frederick Thomas Alexander Lovegrove was admitted to similar degrees (*in absentiâ*). Upon the subject of the Students' Union an appeal was made last year which brought in £8000. A site had been provided in Ashton-street by the council and plans were under consideration and the architect had been appointed. Although £8000 had been assured £5000 were still wanted. The importance of such institutions was now recognised by all the younger universities.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. John Mortimer, M.B. Lond., M.R C.S.Eng., the honorary consulting physician to the Exeter Dental Hospital, has been presented with three pieces of silver plate by the dental staff and board of management of that institution on the occasion of his marriage.

NATIONAL SOCIETY FOR EMPLOYMENT OF EPILEPTICS: THE COLONY, CHALFONT ST. PETER.—The thirteenth annual meeting of the governors of this society was held on July 16th at the London offices, Denison House, Westminster. The chair was taken by Mr. E. Montefiore Micholls and the reports of the honorary medical staff and the executive committee for the year 1905 were received and adopted. From the latter report it appears that the extensions of the Chalfont colony and the consequent increase in the number of colonists have necessitated the purchase of 150 acres of additional land at a cost of £5500, the total area of the colony being now 360 acres. The executive committee states that the considerable recent extensions in the colony buildings have not kept pace with the increase in the number of applications, the result being that all candidates, and especially the female candidates, have to wait a long time for admission. In view of the importance in epilepsy of providing the patient with early treatment it is a source of considerable anxiety to the committee to now that unless additional accommodation is speedily proided the period of waiting for female candidates may extend ver several years. The report of the honorary medical taff states that the general health of the colonists throughut the year was very good and that there was an entire reedom from any epidemic or contagious disease, and in his report also attention is called to the need for greater ccommodation. The colony at present has accommodation or 198 patients, a figure which represents probably less than ·5 per cent. of the epileptic cases in the country that would e suitable for reception in a colony.

ST. MARY'S HOSPITAL.—The annual distribuion of prizes to the students of the medical school took place t St. Mary's Hospital, London, on July 16th in the presence f a large number of visitors. The Dean (Dr. H. A. Caley), n the course of his report, said that the examination esults for the year had been satisfactory: 25 students had btained diplomas of M.R.C.S. and L.R.C.P. and 18 the I.B. degree of the Universities of Oxford, Cambridge, ondon, or Durham. He also added that St. Mary's was epresented by 148 former students in the services—64 in he Royal Army Medical Corps, 48 in the Indian Medical ervice, and 36 in the medical service of the Royal Navy. urgeon-General Sir Alfred H. Keogh, K.C.B., Director-General of the Army Medical Service, presented the prizes nd congratulated the school on being so well represented in he public services, especially in that branch to which he had he honour to belong. Sir Alfred Keogh afterwards unveiled bronze mural tablet in memory of seven members f the hospital and medical school who fell in the outh African war. The memorial bears the following nscription:—

> To the memory of the members of St. Mary's Hospital who lost heir lives while serving in South Africa.—Arthur Baird Douglas, ieutenant-Colonel 3rd Battalion Sherwood Foresters (Derbyshire egiment); Robert H. E. G. Holt, Captain, R.A.M.C.; George William uy Jones, Lieutenant, R.A.M.C.; George Uniacke Jameson, Second ieutenant 1st Battalion the Border Regiment; Cecil Courtenay arsons, Civil Surgeon; Reginald Percy Fort, Civil Surgeon; Edith anley, Gardener, Sister Army Nursing Service.

he tablet is placed in the entrance hall of the Clarence ving of the hospital.

DONATIONS AND BEQUESTS.—Under the will of he late Mr. Charles H. Cowell of Ipswich the East Suffolk Hospital will receive £500.—The Walsall Cottage Hospital, he Birmingham General Hospital, and the West Bromwich District Hospital will each receive £1000 by the will of the ate Mr. Frederick Birch of Birmingham.—The late Mr. rank Bailey of Tilgate, Crawley, and Mark-lane, City, after bequeathing certain legacies to relatives and friends, has eft the residue of his estate to his wife for life, with remainder as she may appoint, and in default of such appointment he has bequeathed certain of his property, estimated to be worth £80,000, to King Edward's Hospital Fund for London.—The following bequests have been made under the will of the late Mr. Francis W. Webb of London: £10,000 to found a nursing institute in Crewe, £2000 to endow a bed at University College Hospital (preferably to employees of the London and North-Western Railway Company), £1000 to the Men's Convalescent Home at Rhyl, £1000 to the Devonshire and Buxton Bath Charity, £1000 to the Manchester Royal Eye Hospital, and £500 to the Royal Albert Asylum for Idiots and Imbeciles at Lancaster.

THE LONDON HOSPITAL.—Mr. R. B. Haldane, Secretary of State for War, distributed the prizes to the successful students at the London Hospital in the library of the Medical College of that institution on July 13th. Mr. Haldane afterwards addressed the students on the subject of medical science, and in the course of his remarks observed that a lesson should be taken from the science of medicine which taught that the healing of the body depended on the understanding of the principles upon which life was governed.

Parliamentary Intelligence.

HOUSE OF LORDS.

MONDAY, JULY 16TH.

County Council and Ambulance Service.

ON the third reading of the London County Council (General Powers) Bill Lord MONKSWELL endeavoured to have reinserted the proposals, which had been struck out by the Select Committee, to empower the Council to establish and maintain an ambulance service for dealing with cases of accident and illness in the streets. He could not make out why the committee had struck out the proposal.—Lord LEIGH pointed out that no city approaching London in size was without a proper ambulance service.—The chairman of the committee, the EARL of CAMPERDOWN, contended that it was impossible to pass a scheme of which no details were given.—It was then stated by Earl BEAUCHAMP that the Government could not advise the House to agree to Lord Monkswell's suggestion. In the opinion of the Home Office the scheme had not yet received that mature consideration which it ought to have before complete power was given to the County Council. The Secretary of State believed that it would be better to follow the line of developing the resources already existing in London than by a revolutionary change to inaugurate an entirely new system, and he had summoned a conference representing the London County Council, the Metropolitan Police, and the Home Office to consider what should be done. It was not unlikely that a committee would be appointed from these three bodies to formulate a scheme.—Lord MONKSWELL expressed his satisfaction with this announcement and the matter dropped.

HOUSE OF COMMONS.

THURSDAY, JULY 12TH.

A Vaccination Case.

Mr. MONTGOMERY asked the President of the Local Government Board whether he was aware that Mr. W. C. Palmer of Merridge, Spaxton, near Bridgwater, applied on Sept. 29th, 1904, to the Bridgwater county petty sessional magistrates for a certificate of exemption from vaccination of his child and was refused; that subsequently he was prosecuted for refusing to have his child vaccinated; that the same bench made an order, with 10*s.* 6*d.* costs, directing him to have the child vaccinated, and afterwards fined him 20*s.* and 2*s.* costs for disobeying that order; that goods to the value of £10 had been seized to be sold in liquidation of the fine and costs which Mr. Palmer refused to pay on the ground that they were illegally imposed; and whether, in the circumstances, the President of the Local Government Board would countermand such sale.—Mr. GLADSTONE replied: My right honourable friend has asked me to answer this question. I have no information with regard to the facts of the case beyond that furnished by the honourable member in the question, but assuming his statement to be accurate I may say at once that neither I nor any other department of the Executive Government have power to interfere with the execution of a warrant of distress issued by a court of competent jurisdiction. It does not appear on what ground the validity of the magistrates' order is disputed, but if any question of law is involved that could only be determined by a court of law.

Fees for Vaccination.

Mr. JOHN JOHNSON asked the President of the Local Government Board whether he had taken any steps in the direction of reducing the high fees paid for vaccination; if so, what steps; and, if nothing definite had been done, would he say when the grievance complained of by the local authorities was likely to be redressed.—Mr. JOHN BURNS answered: I have not at present definitely decided what shall be done in this matter. I am giving attention to it and I will come to a decision as early as may be practicable.

MONDAY, JULY 16TH.

Conscientious Objectors.

Mr. LEHMANN asked the Secretary of State for the Home Department whether he was aware that Spencer Bray, J. J. Vann, and S. Bruin, of Blaby, in Leicestershire, were on Monday last committed to Leicester gaol, the first two for seven days and the last for 14 days, on orders under Section 31 of the Vaccination Act, 1867; and whether His Majesty's Government proposed to take any steps to alter the law so as to make such imprisonments impossible in future.—Mr. JOHN BURNS replied: My right honourable friend has asked me to reply to this question. I have no information as to the particular cases referred to, but I may point out that a parent would not be liable to any penalty under the Vaccination Acts for the non-vaccination of his children if he had obtained a certificate of conscientious objection under Section 4 of the Act of 1898. I am aware that the procedure with regard to obtaining such a certificate is not altogether satisfactory and I am considering whether some alteration might not properly be made in the law with regard to the matter.

Insurance of Lives of Children.

Mr. LEWIS HASLAM asked the Secretary of State for the Home Department whether, having regard to the fact that under the present laws affecting the insurance of the lives of children the death of a child might by means of insurance be a source of profit to the person insuring, he would consider the advisability of introducing a Bill to provide that there should be a limit to the amount payable on the death of a child, so that the amount payable should not exceed such as might be reasonably required to pay for the funeral expenses of the child.—Mr. GLADSTONE answered: I do not know whether my honourable friend is aware that by Sections 62–67 of the Friendly Societies Act, 1896, the sum for which a child under five years of age can be insured in one or more societies is limited to £6 and that by the Collecting Societies Act, 1896, Section 13, this limitation is extended to all industrial assurance companies. Great difficulties have arisen in the way of the numerous proposals which have been made to amend the law by further reducing this limit. I would refer my honourable friend to my reply to the honourable Member for the Tower Hamlets on Feb. 22nd last, in which I explained that the criminal law relating to this matter is already very severe, a parent who insures a child and then is guilty of cruelty or culpable neglect being liable to penal servitude for five years under Section 1, Subsection (4), of the Prevention of Cruelty to Children Act, 1904.

Experiments on Living Animals.

Mr. MACKARNESS asked the Secretary of State for the Home Department whether he could state when the committee which he proposed to appoint to investigate the subject of experiments upon living animals would hold its first meeting and of whom the committee would consist.—Mr. GLADSTONE answered: A Royal Commission on this subject is about to be appointed and the names of the Commissioners will be announced in due course when His Majesty has approved of them.

Medical Inspection of School Children.

In the course of the debate on the Education (England and Wales) Bill Mr. TENNANT proposed to amend one of the clauses in order to secure the compulsory medical inspection of children attending the schools. Nearly all the speakers supported the honourable Member.—Mr. BALFOUR expressed himself strongly in favour of compulsion. But he would have the scheme carried out on a general scientific plan—a plan applicable to the whole country, a plan which would enable them to compare area with area, children under one condition with children under another condition, and the children of one generation with the children of the next. When they had done that, and not till then, they would have some really solid scientific basis for what was now too often merely rhetoric and speculative conclusions about the effect of modern civilisation upon the health and progress of the race.—Mr. BIRRELL confessed that in this matter he was in the hands of the House. He was willing to submit to the judgment of the House that it should be made obligatory on every local authority to provide for the medical inspection of every child on application for admission to a public school and on such other occasions as the Board of Education might direct. The Board of Education was equally willing to receive inspiration from the House in the direction of strengthening its medical staff at headquarters for the purpose, not of carrying out the inspection of the schools—for that, of course, must be done by local medical men to be appointed by the local education authority—but of seeing that the local authorities were discharging the duties which they have at present power to discharge and also to keep in touch with what was going on in continental towns. But what he was not prepared to accept was the further suggestion that the Board of Education should prepare, generally for town and country, schemes for the medical inspection of school children. In order to deal with the matter according to the opinions of the House he was willing to put down for the report stage an amendment to the following effect: "It shall be the duty of every local authority to provide for the medical inspection of every child on its application for admission to a public elementary school and on such other occasion as the Board of Education may direct or the local education authority may think fit."—Mr. TENNANT accepted this promise and the further discussion of the subject was postponed until the report stage.

TUESDAY, JULY 17TH.

Another Vaccination Case.

Mr. JOHN TAYLOR asked the President of the Local Government Board whether he was aware that, in the prosecution of Mr. Dixon at Chester-le-Street police court on July 4th, the public vaccinator stated that he was the private medical attendant of the defendant, that the child in question was not well enough in health to be vaccinated within the period provided by statute, that had he called at the home he could only have postponed the vaccination for two months, but that his scale of payment was not sufficient to recompense him for calling at the home unless he could perform the vaccination; whether it was the duty of the public vaccinator, in cases where, in his opinion, children were too delicate or too ill to render vaccination advisable, to furnish the parents with certificates of postponement; and whether he would take steps to see that such protection was afforded to parents in the Chester-le-Street union.—Mr. JOHN BURNS answered: It is the duty of a public vaccinator to postpone the vaccination of a child if, at the time of his visit, the child is not, in his opinion, in a fit and proper state to be successfully vaccinated. I understand from the public vaccinator referred to in the question that he always adopts this course and that he did not make the statement attributed to him as to the insufficiency of his scale of payment to recompense him for calling at the home unless he could perform the vaccination. He further states that in the particular instance mentioned his partner was Mr. Dixon's medical attendant and that the child had been delicate until the age of about four and a half months but was fit for vaccination at the time the father told him that he would have the child vaccinated by his own medical man.

BOOKS, ETC., RECEIVED.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

Surgery, its Theory and Practice. By William Johnson Walsham, F.R.C.S. Eng., M.B. & C.M. Aberd., formerly Surgeon and Lecturer on Surgery, St. Bartholomew's Hospital, and Member of the Court of Examiners, Royal College of Surgeons of England. Ninth edition. By Walter George Spencer, M.S., M.B. Lond., F.R.C.S. Eng., Surgeon and Lecturer on Surgery to the Westminster Hospital, Examiner in Surgery, University of London. Price 18s. net.

EVERETT AND Co., 42, Essex-street, Strand, London, W.C.

The Elements of the Practice of Comparative Medicine, together with Records of Some Cases. By Frank Townend Barton, M.R.C.V.S., Author of the "Veterinary Manual," "The Practice of Equine Medicine," and George Gresswell, M.A. Oxon., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasgow, Author of "Compensation in Nature." Price 5s. net.

GALE AND POLDEN, LIMITED, 2, Amen Corner, Paternoster-row, London, E.C.

Guide to Promotion for Non-commissioned Officers and Men of the Royal Army Medical Corps, with Appendix on Hints for Young N.C.O.'s on Clerical and Other Duties in a Military Hospital. Compiled by Captain S. T. Beggs, M.B., Royal Army Medical Corps (M.), formerly House Surgeon and House Physician, Royal Victoria Hospital, and Demonstrator of Physiology, Queen's College, Belfast. Price 3s. 6d. net.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

Guide to Anæsthetics. For the Student and General Practitioner. By Thomas D. Luke, M.B., F.R.C.S. Ed., Lecturer on Anæsthetics, Edinburgh University, Anæsthetist to the Deaconess Hospital and the Dental Hospital, Edinburgh. Third edition. Price 5s. net.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin.

Arbeiten aus dem Pathologischen Institut zu Berlin. Zur Feier der Vollendung der Instituts-Neubauten. Herausgegeben von Johannes Orth, Direktor des Instituts. Price M.18.

LAURIE T. WERNER, Clifford's Inn, Fleet-street, London, E.C.

The Cathedrals and Churches of the Rhine and North Germany. By T. Francis Bumpus. Price 6s. net.

LEHMANN, J. F., München.

Lehmann's Medizinische Atlanten. Band IV. Atlas der deskriptiven Anatomie des Menschen. Von Dr. med. J. Sobotta, a. o. Professor und Prosektor der Anatomie und der anthropotomischen Anstalt in Würzburg. III. Abteilung. I. Lieferung: Das Nerven- und Gefässsystem des Menschen. Price M.16.

MARHOLD, CARL, Halle a.S.

Der moralische Schwachsinn. Allgemeinverständlich dargestellt für Juristen, Aerzte, Militärärzte und Lehrer. Von Dr. Schaefer, Oberarzt a. D. d. Irrenanstalt Friedrichsberg in Hamburg. Preis M 3. (Zugleich Heft 4–6 des IV. Bd. d. Juristisch-psychiatrischen Grenzfragen.)

MASSON ET CIE., 120, Boulevard Saint-Germain, Paris.

Traité Pratique de Technique Orthopédique. (3e Fascicule) Technique du Traitement des Tumeurs Blanches. Par le Dr. F. Calot, Chirurgien en chef de l'Hôpital Rothschild, de l'Hôpital Cazin-Perrochaud, de l'Hôpital de l'Oise et des Départements, du Dispensaire, de l'Institut Orthopédique de Berck, &c. Price Fr. 7.

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, India, 8, Hastings-street, Calcutta.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series No. 24. On a Parasite Found in the White Corpuscles of the Blood of Palm Squirrels. By Captain W. S. Patton, M.B., I.M.S. Price 12 annas, or 1s. 2d.

PENTLAND, YOUNG J., Edinburgh and London.

The Edinburgh Medical Journal. Edited by Alexis Thomson, M.D., F.R.C.S. Ed., and Harvey Littlejohn, M.B., F.R.C.S. Ed. New Series. Vol. XIX. Price not stated.

REID, ANDREW, AND Co., LIMITED, Printing-court Buildings, Akenside Hill, Newcastle-upon-Tyne.

The History of the Newcastle Infirmary. By George Haliburton Hume, D.C.L., M.D., F.R.C.S. Edin., Consulting Surgeon to the Royal Infirmary. Price 10s. 6d., post free.

SPRINGER, JULIUS, Monbijouplatz, 3, Berlin.

Untersuchungen über Aminosäuren, Polypeptide und Proteine (1899–1906). Von Emil Fischer. Price M.16.

SWAN SONNENSCHEIN AND Co., LIMITED, 25, High-street, Bloomsbury, London, W.C.

The Girls' School Year-Book. (Public Schools), with The Index of Schoolmistresses. First Year of Publication. 1906. Issued under the Direction of the Editors of "The Public Schools Year-Book." Price 2s. 6d. net.

The Science of Common Life. A Theoretical and Practical Textbook for Students in Secondary, Domestic Economy, and Rural Schools. By John B. Coppock, B.Sc. Lond., F.I.C., F.C.S., Associate of Nottingham University College, Principal of the Kendal Science Schools, Author of "Volumetric Analysis." Price 3s. 6d.

VIEWEG, FRIEDRICH UND SOHN, Braunschweig.

Lehrbuch der Anorganischen Chemie. Von Prof. Dr. H. Erdmann, Direktor des Anorganisch-Chemischen Instituts der Königlichen Technischen Hochschule zu Berlin. Vierte Auflage (Neuntes bis zwölftes Tausend). Price M.15; bound, M.16 and M.17.

W. B. SAUNDERS COMPANY, Philadelphia and London.

Atlas and Text-book of Human Anatomy. By Dr. Johannes Sobotta, Professor of Anatomy in the University of Würzburg. Edited, with Additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy in the University of Michigan. Volume I., Bones, Ligaments, Joints, and Muscles. Price 25s. net per volume.

A Treatise on Surgery. By George Ryerson Fowler, M.D., Brooklyn, New York City, Examiner in Surgery, Board of Medical Examiners of the Regents of the University of the State of New York. Volume II. Price £1 11s. 6d.

WOOD, WILLIAM, AND Co., New York.

A Text-book on the Practice of Medicine. For Students and Practitioners. By James Magoffin French, A.M., M.D., formerly Lecturer on the Theory and Practice of Medicine, Medical College of Ohio. Second revised edition. Price $4.00 net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ARCHDALE, MERVYN A., M.B., B.S. Durh., has been appointed Medical Superintendent at the East Riding Asylum, Beverley.

ATTLEE, CECIL K., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Evelina Hospital for Sick Children.

Irch, Charles, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to Clayesmore School, Pangbourne, Berks.

Urtis, Wilfred, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Sixth District by the Liskeard (Cornwall) Board of Guardians.

Ouglas, Carstairs C., M.D. Edin., has been appointed Extra Examiner in Medical Jurisprudence and Public Health in the University of Aberdeen.

Ainer, J. W., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Thrapston District of the county of Northampton.

Ovder, F. W., M.B., B.C. Cantab., has been appointed Honorary Assistant Surgeon to the Royal Infirmary, Bradford.

Odge, R. F. Vere, M.B., B.C. Cantab., has been appointed Resident Medical Officer for the Out-patient Department of Queen Charlotte's Lying-in Hospital.

Ustler, G. H., M.B., Ch.B. Leeds, has been appointed Assistant House Surgeon at the Royal Devon and Exeter Hospital, Exeter.

Ing, Hamilton, M.B., B.S. Lond., M.B., Ch.B. Manch., has been appointed House Surgeon at the Evelina Hospital for Sick Children.

Ilvfey, John Ellis, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Surgeon to the Derbyshire Royal Infirmary.

Irkness, W. Ronald, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed House Surgeon and Assistant Secretary to the West Herts Infirmary, Hemel Hempstead.

Aclagan, P. A., M.B., B.S. Edin., *has been appointed Certifying* Surgeon under the Factory and Workshop Act for the Ayton District of the county of Berwick.

Arshall, H. F., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at the Evelina Hospital for Sick Children.

Orton, A. Stanford, M.B., M.S. Edin., has been appointed Ophthalmic Surgeon to the Italian Hospital, Queen-square, W.C.

Tanley-Jones, H., M.B. Lond., M.R.C.S., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

Vacancies.

or further information regarding each vacancy reference should be made to the advertisement (see Index).

Bradford Poor Law Union Hospital and Workhouse.—Residen Assistant Medical Officer, unmarried. Salary £100, with rations apartments, and washing.

Bradford, Royal Infirmary.—Medical Officer, *unmarried*. Salary £100 per annum, with board and residence.

Brighton, Sussex County Hospital.—*House Physician*, unmarried. Salary £70 per annum, with board and residence.

Brighton Throat and Ear Hospital, Church-street, Queen's-road.—Non-resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

Burnley, Victoria Hospital.—Resident Medical Officer. Salary £100, with residence, board, and washing.

Cambridgeshire, &c., Asylum.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

Cancer Hospital, *Fulham-road, London*, S.W.—Medical Officer in Charge of Electrical Department. Honorarium £26 5s per annum.

Chelsea Hospital for Women, Fulham-road, S.W.—Clinica Assistant.

Chesterfield and North Derbyshire Hospital and Dispensary.—Junior House Surgeon. Salary £50 a year, with board, apartments, and laundry.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, residence, &c.

Devonport, Royal Albert Hospital.—Assistant to the Resident Medical Officer for six months. Salary at rate of £50 a year, with board and lodging.

Egyptian Government, Ministry of Education.—Professor of Midwifery and Gynæcology. Salary £[illegible]00 a year. Also Medical Tutor and Registrar to Kasr-el Ainy Hospital. Salary £400 a year.

Essex and Colchester General Hospital.—House Surgeon. Salary £80 per annum, with board, washing, and residence.

Evelina Hospital for Sick Children, Southwark Bridge-road, S.E.—Physician to Out-patients.

Hartlepools Hospital.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

Herefordshire General Hospital.—House Surgeon, unmarried. Salary £[illegible]00 per annum, with board, apartments, and washing.

Hospital for Sick Children, Newcastle-on-Tyne.—Resident Medical Officer. Salary £100, with board, lodging, and laundry.

Kirkburton, near Huddersfield, Storthes Hall Asylum.—Locum Tenens for two months. Salary £3 3s per week, with board, lodging, and attendance.

Lincoln Lunatic Hospital.—Assistant Medical Officer. Salary £160, with board, &c.

Liverpool Eye and Ear Infirmary, Myrtle-street, Liverpool.—House Surgeon. Salary £80 per annum, with board and residence.

London County Council.—Medical Officer to the staff engaged on the construction of Rotherhithe Tunnel. Salary £400 per annum.

Manchester, Chorlton-upon-Medlock Dispensary.—Resident House Surgeon, unmarried. Salary £120 per annum, with rooms and attendance.

Manchester, University of.—*Junior Demonstrator* in Physiology. Salary £100, rising to £150 per annum.

Middlesex Hospital, Cancer Research Laboratories.—Research Scholarship. Value £100.

Plymouth, South Devon and East Cornwall Hospital.—Assistant House Surgeon for six months, renewable. Salary at rate of £50 per annum, with board, residence, and washing.

Preston Royal Infirmary.—Senior House Surgeon. Salary £100 per annum, with board, lodging, washing, &c. Also Assistant House Surgeon. Salary £60 per annum, with board, washing, &c.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing. Also Physician to Out-patients.

St. Mary's Hospital, Paddington.—Resident Assistant Anæsthetist for six months. Salary at rate of *£100 per annum, with board* and residence.

Sheffield Union Hospital.—Resident Medical Officer. Salary £100 per annum, with apartments, rations, &c.

Shoreditch Infirmary, Hoxton-street, N.—Second Assistant Medical Officer for six months. Salary £100 per annum, with rations, washing, and apartments.

Stockport Infirmary.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

Sunderland Infirmary.—Two House Surgeons. Salary £[illegible]0 per annum, with board, residence, and washing.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—House *Physician* for six months. Honorarium £25, with board and lodging.

West Bromwich District Hospital.—House Surgeon, *unmarried*. Salary £100 per annum, with board, residence, and washing.

Wisbech, North Cambridgeshire Hospital.—Resident Medical Officer.

Worcester General Infirmary.—House Physician. Salary £80 per annum, with board and residence.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the *Factory and Workshop* Act at Blakeney, in the county of Gloucester, and at Blaydon-on-Tyne, in the county of Durham.

Births, Marriages, and Deaths.

BIRTHS.

Cory.—On July 10th, at Manor House, Soham, Cambs, the wife of *C. G. Cory, M.R.C.S., L.R.C.P., of a son.*

Cuff.—On the 16th inst., at The Lodge, Ashtead, Surrey, to Dr. and Mrs. Herbert Cuff—a daughter.

Harneis.—On July 12th, at Amhurst-road, Hackney, the wife of T. W. Morcom Harneis, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

Inkson.—On July 16th, at Wrottesley-road, Woolwich, *the wife of* Captain E. T. Inkson, V.C., Royal Army Medical Corps, of a son.

McMurtry.—On July 12th, at East-hill, Wandsworth, S.W., the wife of W. D. McMurtry, L.R.C.S. & P. Edin., L.F.P.S. Glasg., of a daughter.

Walsh.—On July 10th, at Prospect-road, Old Brompton, Chatham, the wife of Fleet Surgeon J. J. Walsh, M.B., R.N., H.M.S. *Blenheim*, of a son.

MARRIAGES.

Fairweather—Bell.—On July 12th, at the Cathedral, Rochester, Francis Harold Fairweather, M.D., of Chatham, to Emily Maud, youngest daughter of J. Vincent Bell, M.D., of Rochester.

Maitland—Wilkin.—On July 12th, at Perivale Church, A. Derwent Maitland, M.R.C.S., L.R.C.P., L.S.A., to Effie, youngest daughter of Captain and Mrs. *Wilkin*.

Newbolt—Elliot.—July 11th, at St. Bride's Church, Liverpool, by the Rev. Bernard C. Jackson, M.A., George Palmerston Newbolt, M.B., F.R.C.S., of 42, Catharine-street, to Lila, only daughter of the late *John Elliot*, Esq., *Canonbie, Dumfriesshire*.

DEATHS.

Blackburn.—July 7th, at Ivy House, Barnsley, John Blackburn, M.R.C.S., aged 72. Interred at *Bradfield*, near Sheffield, Tuesday, July 10th.

Eddowes.—On July 11th, at Burleigh Fields, Loughborough, John Henry Eddowes, M.D., J.P., in his 8[illegible]th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN ANTIVIVISECTION FOUNTAIN.

LAST week a proposal to erect an "antivivisection" fountain in memory of a dead dog in the Latchmere Recreation Ground, Battersea, was discussed by the Battersea borough council. A year ago or thereabouts the council agreed to accept the fountain from the International Antivivisection Council. There was to be an inscription which some persons regarded as libellous. At the meeting it was recommended by the highways committee that the Antivivisection Council should be informed that the fountain may now be erected. A proposal was made to defer the matter *sine die*. This was violently opposed. Wild statements were made in respect to the "torture of animals" and "the dishonest use of money which working men had contributed to hospitals." A shorthand writer, understood to represent University College, was asked to retire and it was asserted that members of the council had given information to the College the authorities of which had written that proceedings would be taken if the fountain with the inscription were erected. On the other hand, the secretary to the Antivivisection Council wrote offering to deposit money for the defence. Borough councillors asserted that if medical students came to Battersea "to make a disturbance and smash the fountain" they would find other than passive resisters to deal with. Dr. L. S. McManus, who is a member of the council, characterised the denunciation of the medical profession as humbug. On a vote being taken 29 voted for the reception of the fountain and 19 against.

UNMANNERLY.

To the Editors of THE LANCET.

SIRS,—I was surprised to read in THE LANCET of July 14th the letter signed "L.R.C.S. & L.R.C.P. Edin." There was nothing in my letter that could possibly be construed into an attack on the Scottish Conjoint Diploma. As you explained in a footnote—though it should have been obvious enough—my introduction of details of qualifications was merely to show that Mr. D would have suffered no loss of dignity by meeting me. In a precisely similar case last year, where I again acted for Mr. A, I had a very agreeable and instructive consultation with the medical practitioner in charge of the case.

I am sorry your correspondent has taken umbrage at what I wrote, but I feel sure that if he will read my letter again he will see that the injury is imaginary. I am, Sirs, yours faithfully,

M.D. Lond.

July 14th, 1906.

To the Editors of THE LANCET.

SIRS,—I beg to offer my opinion in the above case, taking the facts to be as stated. My sympathies are with the medical attendant of the sick man. If the patient and his relatives were satisfied with the medical attendance it would have been well for the employer not to have interfered. If the employer wished to do acts of kindness he could have sent sick-room delicacies, &c., approved by the patient's medical man. When the medical man attending offered to meet a consultant I consider he did all that was necessary. The fact that Dr. C—the complainant—was the employer's medical man fails, to my mind, simply on that account to place him on a higher plane than the foreman's medical man. If the employer thought fit to say "impolite things" of his workman's medical man I think they were undeserved and uncalled for. Surely Dr. C does not seriously ask one to believe that because a general practitioner happens to be on the staff of a hospital he is, *ipso facto*, superior to general practitioners who are not? With such a weak case I consider Dr. C's appearance in public print unfortunate. I am proud to sign myself

July 14th, 1906. ANOTHER L.R.C.P., L.R.C.S. EDIN.

*** "M.D. Lond." states definitely above what we knew (otherwise his letter would not have been printed)—viz., that he assumed no superiority. He quoted his position as showing that no obvious inferiority could justify the brusque treatment that he received.—ED. L.

THE TEETH OF WORKING-CLASS CHILDREN.

A MOVEMENT having for its object the better care of the teeth of working-class children is making considerable progress in certain contiguous districts in the centre of Europe. One of the leaders is Dr. Jessen of Strasburg who has succeeded in establishing a school dental clinic at that town. To it the school children are sent regularly for examination. Each child is quickly examined, the result is noted on a card, and a note is added as to the treatment required. The dental clinic does not press children to submit to treatment but it is ready to undertake the work if need be. This it does at a cost of about £320 per annum, almost 3½d. per head of the school population. The expenses are met by grants in aid and voluntary contributions. With treatment teaching goes hand in hand; the child is instructed in the use of a tooth-brush and the teacher discusses teeth, their uses and their care, in his natural history lesson soon after his class returns from the examination. Wall pictures illustrating the growth of the teeth are now to be had for demonstration purposes. In Wiesbaden and Mülhausen school dental clinics will be opened shortly. The initial expense at Mülhausen (90,000 inhabitants) is calculated at £650. In Winterthur Dr. Helbing has lately completed an examination of the teeth of 2400 children. He finds that only 1 child in 40 has a perfect denture and that over 23 per cent. of the teeth examined are bad. As a result of his representations the local school board has decided to add the examination of pupils' teeth to the duties of the medical officer who undertakes the medical examination of the newly enrolled children. At Langenthal, a railway centre and an agricultural district of the canton of Berne, the school board issues circulars to parents enjoining them to pay attention to the state of their children's teeth. For some time past the board has bought tooth-brushes wholesale and has retailed them at slightly over cost price to the children. In this manner it makes a slight profit which is expended in distributing tooth-brushes gratis among poor children.

ADVERTISEMENTS IN PUBLIC URINALS.

To the Editors of THE LANCET.

SIRS,—Could not some method be devised for putting a stop to the placarding of public urinals with all sorts of filthy quack advertisements? Surely the various authorities might put up notices threatening to punish any person who shall affix an advertisement of any kind on the walls of public urinals, either inside or out, and the person who is commissioned to look after these places might be ordered to take round with him each morning a pail and brush and scrape down any advertisements so appearing. I am, Sirs, yours faithfully,

F. R. A.

July 13th, 1906.

*** Some authorities are more active than others in doing exactly what our correspondent suggests.—ED. L.

CURIOUS NAMES.

IN the column of the *Standard* of July 18th headed Births, Deaths, and Marriages the surname "Godbehere" appears in the deaths. Such names as Deogratias, Deusdedit, and the like were common among the North African Christians of the fourth and fifth centuries. Every one will remember Adeodatus the son of St. Augustine. In these cases the names were probably translations of Semitic names, such as Mattathiah or Nathaniel, but in English such names are very rare and it would be interesting to trace the steps by which they came to be adopted into our language. The members of the medical profession come more into contact with all sorts and conditions of men than do those of any other profession, the clergy possibly excepted. Some years ago we remember a medical man practising in Norfolk made an interesting collection of curious and out-of-the-way Christian names existing in remote districts of that county and we hope that any of our readers who come across similar names, either Christian or surname, will communicate them to us. Names are always of interest, for in them is often preserved much historical fact dealing with racial characteristics and the like.

THE ARGENTINE BOOT HEEL.

WE have received from the Patent Argentine Heel Company specimens of their boot heels. The heel consists of two layers of leather with one layer of vulcanised indiarubber between them. The surface which touches the ground being leather there is not the same danger of slipping in wet weather as occurs with an indiarubber heel in which the rubber is in contact with the pavement. One of our representatives who has tried these heels fitted to an ordinary pair of shoes for walking about London reports that he finds them more comfortable than plain leather heels. They can be obtained from all bootmakers.

THE PREPARATION OF INFANTS' FOOD.

AT the invitation of Mr. Cornelius Hanbury, the chairman of Messrs. Allen and Hanburys, Limited, a number of medical men, scientific experts, and press representatives visited the works of the firm on Tuesday last at Ware in Hertfordshire, in which the manufacture of the "Allenburys foods" and the "Allenburys diet" is carried on. A special train was provided for the visitors at Liverpool-street and there were present at the inspection about 200 ladies and gentlemen. The various processes by which the Allenburys foods are prepared were watched with interest. An advantage of the works being situated at Ware is that this town is in the middle of rich pasture-land, so that the milk used in the foods is perfectly fresh and not exposed to the contaminating influences of a long journey. As to the composition of these foods we have already given our analyses of them under the heading of Analytical Records in THE LANCET of March 24th, 1894, p. 748. The manufacturers always lay stress on the necessity of the directions as to how to use the food being carefully followed. Thus one important direction as meeting the objection that these foods are sterilised and therefore lacking in the fresh or vital element of raw milk is to supplement the food with the occasional use of raw meat juice or fresh grape juice, or white of egg. The foods are malted, contain a good proportion of cream, and the milk proteid is digestible, the casein clotting only loosely or not at all, whereas in the case of cow's milk the casein clots densely and in that form is indigestible. At a luncheon which followed the inspection Mr. Cornelius Hanbury gave a history of the manufacture of the Allenburys foods and drew attention to the fact that they always received the best advice that could be given on the subject of infant feeding, and as views advanced so they introduced any modifications that might be held to be necessary in the preparation of the foods.

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A. Z. is thanked for a communication which we will publish in an early issue.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 19th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
uly 13	30·08	S.W.	0·01	121	72	51	55	58	Fine
" 14	30·02	N.W.	...	121	77	58	58	64	Fine
" 15	30·00	S.W.	...	105	70	56	56	60	Cloudy
" 16	30·05	W.	0·04	120	74	54	56	62	Fine
" 17	30·07	N.W.	...	127	80	62	63	68	Fine
" 18	29·95	W.	...	126	83	59	60	63	Fine
" 19	29·81	W.	0·09	100	63	61	61	63	Raining

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

EDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

HURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

RIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

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POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: X Rays. 2.30 P.M.: Operations. Diseases of the Eye.

TUESDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. E. Cautley: Clinique. (Medical.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10.30 A.M.: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin.

WEDNESDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. C. Ryall: Clinique. (Surgical.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: X Rays. 2.30 P.M.: Operations. Diseases of Women.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M.: Demonstration:—Dr. A. Wylie: Pharynx.

THURSDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: X Rays. 2.30 P.M.: Operations. Diseases of the Eye.

FRIDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10.30 A.M.: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin.

SATURDAY (28th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: X Rays. 2.30 P.M.: Operations. Diseases of Women.

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THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1906, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

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A Lecture

ON

HEAD-NODDING WITH NYSTAGMUS IN INFANCY.

Delivered at the Hospital for Sick Children, Great Ormond-street, London, W.C.,

BY GEORGE F. STILL, M.A., M.D. CANTAB., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE HOSPITAL; PHYSICIAN FOR DISEASES OF CHILDREN AT KING'S COLLEGE HOSPITAL; PROFESSOR OF DISEASES OF CHILDREN, KING'S COLLEGE, LONDON.

GENTLEMEN,—Under various names, such as "spasmus nutans," "head-nodding of infants," and "head-shaking with nystagmus," there has been described a curious and somewhat uncommon disorder which is worthy of attention, if only on account of the unnecessary anxiety which it arouses in the minds of those unfamiliar with its occurrence. The earliest published record of which I am aware is one by Ebert in 1850, but it was not until the late Dr. W. B. Hadden of this hospital published his series of observations in 1890 that the disorder became generally recognised. 31 cases of this affection have come under my own observation; 19 of the patients were boys and 11 were girls (the sex was not noted in one case); this disproportion, however, may be accidental, for in a series recorded by Dr. J. Thomson[1] there were 15 boys and 20 girls. The disorder is almost limited to infancy—i.e., the first two years of life, although, as I shall point out, in rare cases it lasts beyond this limit. In 22 out of 28 cases in which the age at onset could be determined the disorder began between the ages of five months and 12 months; of four which began earlier only one was said to have begun as early as the age of three months, and two began after the first year, both before the age of 14 months.

Sketched in outline the clinical picture is somewhat as follows. As the child sits on his mother's lap there is, perhaps, nothing abnormal to be seen for a minute or two, then as the child fixes his gaze on some object the head begins to nod at the rate of about eight or ten nods within five seconds, after which there is a pause of varying length, and so with irregular intervals short series of noddings occur more or less frequently so long as the child is in the sitting position. Hardly less striking than this rhythmic unsteadiness of the head is the curious way the child has of looking at objects out of the corner of his eyes with the head slightly averted and the face turned slightly downwards, reminding one of the behaviour of the Beaver in "The Hunting of the Snark," for, as you may remember,—

> "Whenever the butcher was by,
> The Beaver kept looking the opposite way
> And appeared unaccountably shy."

The other feature which attracts attention is the exceedingly fine rapid nystagmus which is peculiar in being so much more marked in one eye than in the other, that it may appear to be actually limited to one eye, a point which the mother herself has usually noticed. These three symptoms, the head-nodding, the tendency to look out of the corner of the eyes, and the nystagmus, constitute the characteristic features of spasmus nutans which I shall now consider in more detail.

SYMPTOMS.

The rhythmic movement of the head is not necessarily an antero-posterior affirmative nod as the term "head-nodding" might seem to imply; indeed, so far as my own observations go, a lateral shake of the head as in negation would appear to be a commoner movement. Sometimes also the movements vary, being at one time antero-posterior, at another negation, whilst more rarely there is a simultaneous combination of the lateral and antero-posterior movements producing a sort of pendulum movement. In 22 cases I have noted the variety of movement: 11 patients showed only lateral rotation (negation); six showed only antero-posterior nodding; four either of these movements at different times; and one the combined pendulum movement. The rate of movement varies from 60 to 120 nods per minute, the series of nods lasts sometimes only for four or five seconds, and sometimes as long as 30 seconds. I have noted in one case three bouts of nodding in six minutes but they may be more frequent or may occur much less often; there is no regularity in the intervals, they depend largely on the child's occupation. I have thought that the nodding occurs chiefly when the child fixes his gaze upon an object in a sort of abstraction but that the movements cease directly the child is aroused to active attention. In some cases I have specially noted that the movements could be stopped by attracting the child's attention. Perhaps there is some variation in this respect, for one mother informed me that the movements were specially noticeable when the child was watching children playing in the street, and another said that her child showed the nodding chiefly when not interested by anything in particular. The head movement occurs only when the child is sitting with the head unsupported; it ceases, therefore, when the child is lying in a cot or leaning the head against the mother's arm. This is a point upon which I would lay some emphasis, for it is of some importance in diagnosis; the condition might easily be overlooked if the child is seen only lying in a cot. Moreover, there is another movement, head-rolling, which must be distinguished from the head movement of spasmus nutans and which occurs chiefly when the child is lying down. The range and vigour of the movements vary considerably in different cases and in the same case at different times; in some they are so slight as to be easily overlooked while in others they are obvious to all. Twice I have seen the antero-posterior nodding so forcible as almost to shake the child's bonnet off, but this is, I believe, quite exceptional. But whether the movements be slight or vigorous they are obviously involuntary and in this way differ from the much commoner "head-rolling" which has the appearance of a voluntary movement.

I have already alluded to the occurrence of head-nodding when the infant is sitting gazing at some object in an absent-minded sort of way. And this leads me to remark on the curious tendency of these children with spasmus nutans to fall into an absent-minded stare, a sort of "brown study" which seems hardly natural for an infant. But there is nothing whatever in these moments of abstraction to suggest *petit mal*. The child takes notice directly attention is drawn to sight or sound; there is no change of colour, no tendency to any epileptiform manifestation—in fact, no ground whatever for regarding this peculiarity as due to *petit mal*. I wish to lay great stress upon this point, for it has been stated that children with spasmus nutans show a special liability to *petit mal*. So far as my own observations go I have not seen the least tendency to epilepsy of any sort. Very remarkable is the habit these infants have of looking out of the corner of the eyes while the face is turned in the opposite direction and slightly downwards. So characteristic is this when present—and I think it is present in many cases—that it should at once suggest spasmus nutans. The parents themselves have often noticed it. In one of my cases it was the first complaint that the infant had recently begun to look out of the corners of his eyes "in a funny, coy way," which had made the father, a medical man, fear some serious cerebral disease. I have no explanation to offer for this curious symptom. I have heard it suggested that it is due to an effort to obtain fixation of the eyes which nystagmus renders difficult, but this can hardly be so, for I have seen this sideway gaze very marked in two of the exceptional cases where there was no nystagmus. "Gaze" I say rather than "glance," for during this action perhaps even more than at other times the infant is apt to stare fixedly as if in one of those "brown studies" to which I have referred. This phenomenon may be noticeable several times within five or ten minutes.

The nystagmus which with the head movement constitutes the chief feature of spasmus nutans is characteristic and peculiar in certain respects, and chiefly in two points. 1. Its unilateral predominance. It is almost invariably much more marked in one eye than in the other—indeed, in some cases it appears to be actually unilateral. This unilateral predominance, apart from any unilateral lesion of the media or fundus, is, so far as I am aware, excessively rare apart from this particular disorder. 2. Its onset without apparent cause in an infant a few months old, and its complete disappearance after a few weeks or months. Such temporary nystagmus in infancy without ocular lesion or any evidence of gross cerebral disease is, I believe, almost peculiar to spasmus nutans. The nystagmus differs also from that due to some other conditions in being exceedingly fine and rapid. It may be vertical, horizontal, or rotary, and Dr. Thomson has observed it to be convergent instead of conjugate in some cases. I have seen it to be associated with vertical nystagmus of the upper eyelid but this is unusual. I have not observed the rhythmic contraction of the pupil (hippus) which some writers have recorded; Dr. Thomson noted this in four out of 35 cases.

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[1] International Contributions to Medical Literature, Festschrift, May, 1900.

The onset of nystagmus in spasmus nutans may precede the head-shaking by several weeks or even months. In one of my cases it was stated to have been present three months before the head-nodding began; more often the head movement is the first symptom that attracts attention and the nystagmus may appear later. From this variation in the order of occurrence of these symptoms it might be conjectured that cases would occur in which one or other symptom was lacking altogether and there can be little doubt that not only does the characteristic head-nodding occur *sometimes without nystagmus at any period of the disorder*, but the nystagmus may be the only manifestation of spasmus nutans, if the affection may be so called when head-shaking is entirely absent. The evidence of this lies in the occurrence in infants of nystagmus which has the characteristic features mentioned above and which shows the same age incidence, seasonal variation, and relation to rickets, and the same temporary character, a duration of weeks or months, as does the nystagmus which is associated with head-nodding. I have included in my series of 31 cases three in which was shown this nystagmus alone and two in which was shown the characteristic nystagmus associated not with head-nodding but with the much commoner quasi-voluntary movement head-rolling, an association which is perhaps to be regarded as accidental. Of the 26 cases with head-nodding 23 patients showed nystagmus sooner or later (in two of these it was extremely slight and perhaps open to doubt); only two showed no nystagmus at any time.

With this description of the symptoms of spasmus nutans I would mention the case of an infant, aged five months, in whom not only were the antero-posterior noddings of the head unusually marked but there was also some shaking of one arm. These symptoms had lasted for some days when I saw the child and I heard from Dr. C. W. Cooke of Willesden, under whose care the child was, that they passed off soon afterwards without leaving any ill effect. In one other case I have noted some shakiness of the arms and Dr. Thomson mentions this symptom as present in two cases in his series.

ETIOLOGY.

I turn now to the consideration of the etiology of spasmus nutans. Rickets is present in a large proportion of the cases. In 20 out of 25 cases in which I have noted this point the patients showed some degree of rickets but only four showed severe osseous rickets; in most it was particularly noted that the evidence of rickets was definite but slight. The occasional absence of rickets shows that rickets is not an essential factor; moreover, in the rare cases in which the disorder begins at as early an age as two or three months rickets is not likely to have been a causal factor even if it is found later. It is, I think, clear that spasmus nutans does not stand in so close a relation to rickets as do such conditions as laryngismus stridulus, facial irritability, and tetany phenomena which in infancy are almost always associated with well-marked and often severe degrees of rickets. It is, indeed, noteworthy how seldom spasmus nutans keeps company with any of these phenomena, which are so closely associated together that the presence of any one of them raises an expectation of the others and which, like convulsions, are well recognised as expressions of the nervous instability of rickets. In my own series one patient showed facial irritability; in Dr. Thomson's series of 35 cases two showed laryngismus stridulus with or without facial irritability and two others showed facial irritability without laryngismus. As a predisposing cause, however, rickets must be regarded as a frequent factor in the etiology of spasmus nutans.

The relation of this disorder to dentition is specially noteworthy. The onset of spasmus nutans is most commonly between five and 12 months of age, the period when the worry of dentition begins; the affection rarely persists after the end of the second year, the end of the first dentition. Moreover, it was evident in some of my cases that just before the eruption of a tooth the head movements and also the nystagmus were increased, while they at once became less when the tooth was through the gum. My own opinion is entirely in agreement with that of Henoch who regarded the irritation of teeth as the usual exciting cause of spasmus nutans. I think, however, that it is quite likely that other forms of peripheral irritation may also act as exciting causes, and some support is given to this view by the closely comparable phenomenon to which Mr. W. T. Lister has drawn my attention, the occasional production of temporary nystagmus by ear-syringing. Preceding illness or injury would seem to have determined the onset in some of my cases; in one with nystagmus only the nystagmus began three days after an attack of diarrhœa and vomiting; in another it began during convalescence from diphtheria; in two others during convalescence from infantile scurvy; in one case head-nodding began four days after an attack of diarrhœa, in two just after bronchitis, and in one a few hours after a fall on the head Its occurrence in rickety children and after the exhaustion of various illnesses or the shock of an injury, and its very close relation to dentition and the exacerbations just when a tooth is in process of eruption, all suggest that spasmus nutans is a functional disorder depending upon an acquired or congenital nervous instability with some peripheral irritation as an exciting cause.

The defective-light theory.—Of recent years there has been put forward a theory which is worthy of careful consideration—namely, that spasmus nutans is due to living in ill-lighted dwellings; dimness of light, it is supposed, causes deficient fixation of vision, and, moreover, the infant throws his eyes into an unnatural and strained position in attempting to look towards the window. To this strain upon the ocular muscles is due the nystagmus; the head movements are secondary to the nystagmus. This is the view put forward by Raudnitz.[2] The arguments adduced in its favour are: (1) the fact that infants with spasmus nutans often live in dark dwellings; (2) the rarity or non-existence of the disorder amongst the wealthier and consequently better housed; (3) the onset of the disease nearly always during the dark months of the year; and (4) the analogy with miners' nystagmus, with which there are known to be associated in rare instances some rhythmical swaying movements of trunk and head.

Now I venture to think that in spite of the above apparently strong arguments there are grave difficulties in accepting the defective-light theory.

1. It is quite certain that spasmus nutans may occur in infants living in well-lighted dwellings. I have inquired specially into this point in 27 cases; in four of these I was able to visit the home, in the rest my inquiry was only by careful interrogation not by actual visiting and is therefore less convincing than actual visitation would be. In four cases only did the home appear to be ill lighted and in some of these the child was hardly taken out of doors at all. In 23 out of the 27 cases, including the four which I visited myself, there appeared to be no reason for regarding the room in which the child chiefly lived as ill lighted, and in several cases it was specially noted that the rooms were light and sunny. But in considering the question of light it is obviously necessary to take into account to what extent the child lives indoors. Some of my patients were taken out daily and in one case it was particularly stated that the child was taken out much every day and "in all weathers."

2. The disorder is undoubtedly seen chiefly in hospital practice, but I have seen it in three cases in private practice amongst people in comfortable circumstances and well housed, once in the infant of a medical man whose nursery was an excellently lighted room. It must be remembered also that rickets, which most observers have regarded as a predisposing cause, is commoner amongst the hospital class than amongst the well-to-do.

3. The seasonal incidence of the disease is, indeed, remarkable. In 21 of my cases the onset could be dated with some degree of accuracy: January, 7; February, 5; March, 1; April, 0; May, 0; June, 0; July, 1; August, 0; September, 2: October, 1; November, 1; and December, 3. In six others the date could be determined with less certainty, thus: January, 1; February, 1; March, 3; and November, 1. So that out of 27 cases 17 began within the three months December to February. Only one began during the five months April to August. These figures agree with those collected by Dr. Thomson and addition of his statistics to mine shows that 86 per cent of the cases of spasmus nutans have their onset during the five months November to March. But the special incidence of the disorder in these comparatively dark winter months is not necessarily connected with deficiency of light and I would point out that

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[2] Jahrbuch für Kinderheilkunde, Band xlv., p. 145.

ryngismus stridulus, another nervous disorder associated ith rickets and one which can hardly be attributed to eficiency of light, has a very similar seasonal incidence; its nset is, it is true, rather more often in March than in anuary, but according to my own statistics no less than 0 per cent. of the cases have their onset during the five onths November to March. It would seem, therefore, that uring this season there is some influence apart from eficiency of light favouring the onset of certain nervous isorders in connexion with rickets.

4. The analogy with miners' nystagmus can hardly be said o support very strongly the defective-light theory, for it is he opinion of experts now that such nystagmus is due uch less to the bad light than to the strained position of he eyes in this occupation; and nystagmus is known to ccur from a similar cause in other occupations in which a trained position of the eyes is usual, although the work is one in broad daylight. Moreover, the miners' nystagmus oes not show, so far as I have been able to ascertain, the nilateral predominance which is so striking a feature in the ystagmus of spasmus nutans.

Lastly, this theory seems to assume that the head movements are secondary to the nystagmus; whereas clinical xperience shows that the head movement often precede he nystagmus and occasionally no nystagmus appears at ny time.

Prognosis.

Spasmus nutans usually passes off after a few months, eaving no ill-effects; occasionally it lasts only from two to hree weeks, more often it lasts from three to 12 months; it arely lasts beyond the end of the second year. I have, howver, seen nystagmus still present in one case at the age of our years.

As already stated, I know of no special relation between pasmus nutans and epilepsy, minor or major; indeed, I ave not seen a single case in which the child has developed pilepsy either during the persistence of, or subsequently to, pasmus nutans. I suspect that the tradition of such an ssociation has arisen from the description given by Ebert f cases of epilepsy with clonic jerking of the head under he same heading "Spasmus seu Eclampsia Nutans," an nfortunate confusion of disorders which differ widely both n their symptoms and in their course. In one of my cases a ingle convulsion occurred in the ten months during which pasmus nutans lasted, but it appeared to be an ordinary nfantile convulsion such as any rickety infant may have, and no others occurred during the subsequent period of observation (five months).

I have been asked several times whether the disorder will leave any injurious effect upon the intellect and I have kept notes in several cases of the child's progress in walking, in talking, and in intelligence. I have not found them more backward than other children, unless the degree of rickets happened to delay development, which it rarely did; but spasmus nutans, being an index of nervous instability, is, I think, likely to occur in children who will show nervous peculiarities at a later age. (I am not alluding to imbecility, though there would seem to be some special liability to this disorder in Mongol imbeciles; two cases in my series were "Mongols," and Dr. Thomson includes two cases in his series of 35 cases and alludes to another.) In several cases I have thought that the child long after all trace of the disorder had disappeared was a highly nervous or eccentric child without showing any lack of intelligence. One patient was sent to me subsequently for "spitefulness and screaming," another at the age of four years because it was "so nervous and screamed at the slightest thing." Apart, however, from this possible foreshadowing of later tendencies to neurosis, it is probably safe to give an unqualified good prognosis.

Diagnosis.

Spasmus nutans must be distinguished from a very rare congenital condition of nystagmus with head-nodding. This disorder, unlike spasmus nutans, is permanent, not transitory. In a case under my care, a boy, aged seven years, apparently of average intelligence, showed head-nodding very like that of spasmus nutans, but the nystagmus, which dated from birth, was coarser and less rapid than that usually seen in spasmus nutans and showed no unilateral predominance. The eyes, as in spasmus nutans, showed nothing abnormal apart from nystagmus.

Another curious movement to be distinguished from spasmus nutans is the head-rolling which is seen in infancy and sometimes in children just past infancy. It occurs chiefly when the infant is lying down—the child rolls his head monotonously from side to side on the pillow. The movement appears to be voluntary, whereas that in spasmus nutans appears to be quite involuntary; it is not associated with nystagmus.

Epilepsy with clonic jerkings of the head forward upon the sternum has unfortunately been called "eclampsia nutans" and by some writers "spasmus nutans," but apart from the name there should be little risk of confusion. The attacks consist of a series of forcible noddings of the head or bowing movements of the whole trunk, usually with loss of consciousness and other usual accompaniments of epilepsy. Nystagmus, if present, is only likely to occur as part of each attack, whereas in spasmus nutans it is to be seen just as often when the head is at rest as when the nodding is present; the epileptic nodding in infancy is associated almost always with idiocy sooner or later.

Treatment.

The very variable duration of this disorder and its frequent fluctuations in degree make it difficult to estimate the value of treatment. Diminution both of the head-nodding and of the nystagmus sometimes follows the use of sedative drugs and I have thought that phenazone was more valuable than bromide in these cases. At six months old half a grain, and at one year old one grain, of phenazone may be given. In some cases I have given a combination of bromide with cod-liver oil apparently with good results. The part played by rickets in predisposing to spasmus nutans suggests also the advisability of inquiring into the feeding and correcting any fault which may favour the rachitic tendency. I have no doubt also that cold or tepid douches as the infant sits in a warm bath tend to reduce the nervous instability and that confinement in a close, ill-ventilated room, whether well or ill lighted, increases this instability and is therefore to be forbidden. For this reason I have urged the parents to keep these children out of doors as much as possible, and I suspect that in the greater liability to confinement in a stuffy room with closed windows during the cold months lies the explanation of the seasonal incidence of spasmus nutrans rather than in any deficiency of light.

An Address

ON

PERICARDITIS IN CHILDHOOD.

Delivered before the Æsculapian Society on April 30th, 1906, to open a discussion on the subject,

By ALEXANDER MORISON, M.D. Edin.,
F.R.C.P. Lond. & Edin.,

PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL AND TO THE CHILDREN'S HOSPITAL, PADDINGTON GREEN.

Gentlemen,—An opening address written to provoke discussion upon a particular subject should touch upon many points without exhausting them and may express views which do not gain universal assent. In the following remarks the first of these conditions will certainly be found to be fulfilled, and should some of the conclusions arrived at not meet with entire approval I hope it may also be considered that they deserve discussion before modification, acceptance, or dismissal. It is on the whole a fortunate tendency of the normal human mind that it directs attention chiefly to the most dominant factors in any situation. This attitude has, however, the disadvantage that it withdraws attention from the investigation of possibilities which may often be of minor importance but which may also occasionally prove of primary consequence and yet escape detection. Surgeons and also physicians, who have sometimes missed the key to a situation by neglecting, for example, the examination of the rectum, have frequently emphasised the importance of such an investigation in obscure cases, even if the symptoms do not positively point to that structure as their source. I feel inclined on the same grounds to insist that, as a matter of routine, the condition of the pericardial sac should be particularly examined, because there are few physical conditions in disease which are so often left undetected as is pericarditis when the effusion or other morbid condition is not of a very obtrusive nature. I need not, perhaps, recall the oft-told tale which relates how a certain distinguished physician called in consultation detected a pericarditis which the very able family adviser had, much to his own annoyance, overlooked. The discoverer of the condition consoled his brother practitioner by remarking that it was perhaps as well that he had not detected it, as he might have been tempted to treat it! I have no doubt that the now deceased worthy to whom I refer had frequently himself missed a pericarditis and only found it post mortem, while his scepticism as to treatment embraced many conditions besides pericarditis, although in this instance it was probably in a measure wise.

In the early stages of the development of the heart in embryo that section of the cœlom which is ultimately shut off as the pericardial sac is, compared with the heart itself, relatively large, just as the whole embryo is, relatively to its amniotic sac, small. The heart grows to fill the pericardium until their relations are fixed by the attainment of the ultimate relative size of these structures. *Then* the heart fills the sac in normal circumstances so completely that only a very small quantity of fluid, a drachm at most in the adult and much less in the child, remains within it, to lubricate in health the movements of the ever-active organ. The *position* and dimensions of the heart thus become for clinical purposes those of the pericardium. But the distensibility of the sac is considerable and when it contains an excess of fluid its area is, relatively to the heart, much increased, as in early embryonic life, and to a certain extent this must be regarded as conservative. On the subsidence of such fluid contents, when this takes place and when at the same time the heart is affected by hypertrophy from some concurrent valvular lesion, as is often the case, the increase in size of the heart relatively to its containing sac also again reproduces the later relations of embryonic growth to which I have already referred. This increasing apposition of inflamed visceral and parietal pericardium is probably one of the causes which favour that adhesion of these surfaces, which is followed by still greater hypertrophy of the organ, more especially if at the same time adhesions have been established by inflammatory processes to structures outside the pericardial sac, such as the sternum, ribs, and pulmonary pleuræ.

It has frequently been remarked that statistics are of little value for determining the ratio in which related physical events occur in pathology and in medicine generally. While this is perhaps true if our object be to attain a fractional precision, it does not necessarily hold good when we desire by even a moderate number of cases to ascertain the drift of certain underlying general principles. My taking this view must form my excuse for examining a certain number of fatal cases of pericarditis in children which have occurred in the practice of my colleagues, past and present, and myself at the Children's Hospital at Paddington Green, and anatomical particulars of which have been preserved in the post-mortem records of that institution.

In 44 cases of acute and chronic pericarditis the cardiac valves were unaffected by disease in 12 instances. The pericardium was not adherent in six and is stated to have been merely inflamed in five. It was adherent in 17 cases either to the epicardium or to both this and extraneous structures, while in three instances there were costo-pericardial adhesions without adhesions between the visceral and parietal layers of the sac. In one case the adhesions were pleuro-pericardial. In the 12 instances in which the endocardium was unaffected the pericarditis was due to tubercle, pneumonia, or empyema. In the vast majority of the remainder, in which there was valvular lesion, the cause of the disease was acute rheumatism, the few exceptions being constituted by congenital disease or malformation of the heart. That is to say, the cases in which valves escaped simultaneous implication in the pericarditic process were due to localised conditions, spreading chiefly by contiguity towards the heart, from immediately neighbouring structures. The cases, on the other hand, which showed endocardial as well as exocardial disease were the result of a general blood infection, the agents of disease being carried by that all-permeating fluid to all the component parts of the organ. Indeed, the late Dr. Octavius Sturges, who drew attention to this feature of heart inflammation in children, abandoned very largely the use of terms denoting the separate inflammation of the endocardium, myocardium, and pericardium, and used, as a rule, the general term "carditis," because of the universal nature of the cardiac inflammation in many such cases.[1] Pericarditis, in a limited number of cases, may be the chief lesion even when the inflammation is of rheumatic origin and the removal of a pericardial effusion may in such cases be the chief object of treatment, as it may also be the chief cause of danger to life. But in the majority of cases the pernicious influence of pericarditis alone is gradually asserted and is frequently marked by a notable exaggeration of the conditions which produce hypertrophy of the heart and disorder of its action. This may be gathered from the weight of the organ noted in cases of valvular disease and in which it is additionally hampered by the presence of extraneous adhesions. Thus, in nine cases in which the valves were affected and the pericardium at the same time was adherent the following particulars as to age, sex, nature of disease, and heart weight attained may be gathered from the records I have mentioned:—

No.	Sex.	Age (years).	Nature of disease.		Heart weight.
1	M.	10	Aortic regurgitation.	Adherent pericardium.	16 ounces.
2	M.	5	Aortic and mitral valvulitis.	,,	Large.
3	F.	5	,,	,,	Rather large.
4	M.	7	Mitral valvulitis, aortic reflux.	Adherent pleuro-pericardium.	Much enlarged.
5	F.	11	Mitral and aortic valvulitis.	Adherent costo-pericardium (not visceral).	15½ ounces.
6	F.	11	Mitral reflux.	Much viscero-pericardial and costo-pericardial adhesion.	25 ounces.
7	F.	5½	,,	Pericardium adherent generally.	Very large.
8	F.	13	,,	Pericardium firmly adherent.	26 ounces.
9	M.	8	,,	Cor villosum; pericardio-sternal adhesion.	18½ ounces.
10	F.	11	,,	Pericardium not inflamed; two ounces of fluid.	12 ounces.

The hypertrophic capacity of the heart as representing visceral muscle appears to vary in different people just as does the hypertrophic capacity of the somatic general musculature. But we can all develop our muscles and perhaps all our faculties to some extent in proportion to the resistance we have to encounter, provided we put our backs into the business slowly, continuously, and systematically and do not rush at a task with delirious precipitancy. So also we find the influence of tethering conditions in pericarditis exerts a certain exaggerating influence upon cardiac hypertrophy apart from the native developmental power of a given patient. Thus, if we compare Cases 5 and 6 among those to which I have just referred we find that they were both females and both 11 years of age. Case 5 had mitral and aortic disease, with costo-pericardial, but not viscero-pericardial adhesion and her heart weighed 15½ ounces. Case 6 had only a mitral regurgitant lesion but there was much viscero-pericardial adhesion and also adhesion of the pericardium to the ribs and her heart weighed 25 ounces. Now this notable difference cannot be accounted for by the nature of the valvular lesion, for, *a priori*, we should have expected the additional aortic lesion to have tended to add to the hypertrophy of the heart, for it is in disease of this valve that we more frequently find the cor bovinum, other things being equal, than in cases in which the mitral valve alone is affected. It is, of course, possible that No. 6 had the greater hypertrophic capacity to which I have referred, but a more probable cause is the difference in the nature of the pericardial lesions. In Case 5 the heart moved freely within its sac. In Case 6 both systole and diastole were impeded, in addition to any endocardial valvular impediment to the blood stream. In Case 8 also the case of a girl, aged 13 years, with mitral reflux alone and a firmly adherent pericardium, the heart weighed 26 ounces; while in Case 10, a girl, aged 11 years, with mitral regurgitation but without pericarditis (the pericardium merely contained two ounces of static serum), the heart only weighed 12 ounces. These facts are sufficient to declare the aggravating influence of chronic adhesive pericarditis in heart disease.

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[1] Heart Inflammation in Children, 1895, p. 5.

But when we consider the histology of pericardial inflammation we can see yet another source of deterioration in cardiac action due to that condition. In acute inflammation of the pericardium the stimulation of nerve trunks by the inflammatory process appears to be one of the causes of the disturbed action of the heart. I do not at present propose discussing this point in greater detail, in view of the prevalent myogenetic notions of some physiologists and physicians. For, insensitive as visceral nerves are in ordinary circumstances, we know that in conditions of disease pain may be referred to areas in which they are distributed and whatever the degree of independent muscular rhythmicality possessed by the cardiac muscle it is admitted that the heart is endowed with, and is under the control of, the nervous system. A specimen I place under the microscope shows how easily accessible cardiac nerve trunks are to spreading inflammatory processes in the pericardium. Under the external fibrinous layer of lymph a zone of active proliferation in the epicardium will be noticed. The invasion of leucocytes will also be observed at points to be creeping heartwards through the epicardial fat and at points of contact with the cardiac muscle interstitial proliferative processes will be seen in the latter. This section was made by me from the left ventricle of a girl who died in the Great Northern Central Hospital under the care of my colleague, Dr. C. E. Beevor. In more chronic conditions, with the thickening and organisation of interstitial carditis, muscle fibres degenerate and thus also some ultimate disability of the muscle cells is induced.

This pathological description applies to rheumatic cases in children which, as I have said and as Dr. Sturges pointed out, tend to become generally carditic. In these cases a so-called "simple carditis" may become "malignant" or "infective" or a malignant endo-pericarditis may be engrafted on an old heart inflammation of so-called "simple" character. Further discussion of these points would, however, rouse controversy which would lead us aside from our main theme —namely, the discussion of pericarditis in childhood as a clinical condition, practically considered. I need only add in this section that when extra-cardiac localised infections spread towards the heart and attack the pericardium the inflammation of the latter frequently becomes purulent, while, as I have stated, the endocardium and heart muscle as a whole escape.

The routine examination of the cardiac area at times leads to the early diagnosis of pericarditis. Thus a child was brought to me at the Children's Hospital, Paddington Green, on account of tonsillitis and the mother was unaware of any complaint beyond sore-throat. The tonsillitis was of the usual follicular type, but before dismissing the patient with a gargle and some salicylate mixture I placed the stethoscope over the heart and found general double friction sounds over the whole cardiac area. The child was at once admitted under my care to the hospital, when some effusion with increased cardiac dulness and diminished friction took place in due course. Although for a time there was noticed a soft apical bruit in the mitral area with triple rhythm, the patient was discharged recovered in about a month without any evidence of permanent endocardial lesion.

When there is evidence of general carditis with other rheumatic signs, pericarditis is not likely to be overlooked. Sturges points out that the fluctuation of percussion dulness at the *left* ventricular base—that is, at the level of the second and third left ribs—is the most trustworthy sign for determining variations in the amount of such pericardial effusion.[2] The effusion may be large and indicated by a much extended area of cardiac dulness with comparative inaudibility of heart sounds, or the distension of the sac may be too slight for detection at the bedside by clinical signs. Pericarditis is most likely to be overlooked when it is secondary to tubercle or pneumonia. In such cases the local conditions in the lung frequently appear sufficient to account for the state of the patient. In the absence of auscultatory signs of endocarditis the possible presence of pericarditis may not be suspected and is frequently only revealed after death. Thus a child ten months old admitted under my care at the Paddington Green Children's Hospital, exhibited a swinging temperature, dulness over the lower half of the right lung posteriorly, and an apex beat in the left nipple line, without noticeable bruit endo- or exo-cardial. The right pulmonary base was explored for pus, in view of the swinging temperature, on more than one occasion but without result. The child ultimately died. The lung was found to be in a condition of tuberculous consolidation, and the pericardium was full of a thin purulent fluid, while the surface of the heart exhibited the well-known shaggy appearance which has been termed cor villosum and is doubtless due to the movements of the heart within a cavity covered with recently effused lymph.

Passing from the diagnosis of acute to that of chronic conditions it might *a priori* be imagined that the detection of an adherent pericardium would not be an easy matter, except under certain well-defined conditions, and this is in practice found to be the case. Much ante-mortem positiveness, both for and against the existence of this condition, has been salutarily humbled by the revelations of the necropsy. But a justifiable surmise on this point may be made, as I have hinted, in certain circumstances. When the cardiac area is unusually large, the movements of the apex beat comparatively fixed in position on changing the posture of the patient to the right or left, and if, further, there be present a well-marked double bruit audible at the point of the heart we may be fairly certain of the existence of the condition in question, both as affecting the visceral and parietal layers of the pericardium and the tethering of the sac to the inner surface of the thorax. The double apical bruit in such cases appears to be due not only to incompetency of the mitral valve but also to some virtual narrowing of the atrioventricular inlet by approximation and fixation of the mitral curtains, caused by fixation of the ventricle, owing to pericardial adhesions. The recession of the intercostal spaces in the neighbourhood of the systolic apical impulse is not a trustworthy sign. It is no doubt witnessed when the heart is enlarged and the pericardium is adherent; but it is also seen when the organ is enlarged without being adherent. It may, that is, be due to negative pressure within the chest, not to active drag on its walls. A boy, aged 11 years, was admitted under my care to the Children's Hospital, Paddington Green, on July 24th, 1905, whose case is interesting and as it illustrates some of these points may be briefly related. He had suffered from rheumatic fever when six years of age and had been in other hospitals at that time, when his heart was known to be affected. On admission to hospital at the above date he had much dyspnœa, ascites, and œdema of the legs. The cardiac area was greatly increased, the apex beat being in the seventh space six inches to the left of the mid-sternum, and auscultation revealed an apical double bruit which was also audible in the back. The second sound was reduplicated and there was no sign of aortic valvular disease. Digitalis, strophanthus, and strychnine were prescribed in sufficient doses and 28 ounces of fluid were removed from the abdomen by paracentesis, after which his general condition improved. In August he was transferred to the Great Northern Central Hospital, still under my care, as the Children's Hospital was closed for cleansing. There his condition again became grave. The urinary output fell very much, his dyspnœa was urgent, and the pulse was quick; but under cardiac tonics and the steady administration simultaneously with these of opium he again improved and about the end of September returned to his own home much relieved as regards circulation and respiration but only so when at rest; any exertion still caused distress. He appears to have remained fairly comfortable at home until the beginning of December when his circulatory embarrassment again became great and he was readmitted to the Children's Hospital under my care on the 6th of that month. The physical signs were much as on admission originally but the liver was greatly enlarged and there was also again some ascites with considerable cyanosis. Although digitalin, strychnine, and morphine were used hypodermically and the patient was bled twice he gradually sank and died next day.

After death the heart was found to be greatly enlarged and weighed after the removal of all clots 21 ounces. The lungs were pushed aside and the external surface of the pericardium was extensively in contact with the thoracic wall and adherent to it. The visceral was likewise much, but not universally, adherent to the parietal pericardium. The heart itself was greatly dilated and hypertrophied, especially in its dextral chambers, and the tricuspid and mitral orifices admitted respectively five and four fingers, while the edge of the posterior curtain of the latter was slightly thickened. The pulmonary and aortic valves were competent and unobstructed. The other organs exhibited the usual phenomena of chronic congestion. The case was therefore one in which endocarditis, if present at all, had played a very subsidiary rôle. The large size of the heart, its comparative fixation in position, and the double apical bruit led to the surmise of adherent pericardium during life and the necropsy justified the belief. In the most marked cases, however, experience and the humbling revelations of the dead-house have taught us sufficient prudence to avoid positiveness in the diagnosis of many cases of adherent pericardium.

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[2] Loc. cit., p. 35.

The *prognosis* of pericarditis in childhood is roughly indicated by the history of the three types of case which I have mentioned, although differences in detail may modify the destiny of sufferers even in these cases. There was: 1. The case of uncomplicated pericarditis with effusion following tonsillitis in which the heart ultimately returned, so far as clinical signs could determine the fact, to a normal condition. Cases are met with also of this type in which the issue, if ultimately favourable, is much more delayed. The effusion may be much greater and more persistent and even require surgical aid for its removal. When, moreover, such pericarditis is associated, as is often the case, with more serious implication of the myo- and endo-cardium the result, as we know, is too often fatal, the determining factor in such cases usually being the concurrent disease of more vital structures or the greater virulence of the infective state to which the local lesions, both endo- and peri-cardial, owe their origin. 2. The pericarditis of childhood associated with tuberculosis and pneumonia even without endocardial complication is always of grave prognosis and the tuberculous perhaps more hopeless than the pneumococcic. 3. Prognosis in adherent pericardium is naturally dependent largely upon the degree of symphysis within and outside the pericardial sac and, as I have stated, the determination of this point is by no means easy. The very hypertrophic capacity of the heart which favours the notable increase in the size of the organ in some of these cases seems to favour additional tethering impediment to cardiac action by bringing the sac into close contact with the heart and surrounding parts.

When pericarditis is, as is frequently the case, a secondary incident in a grave general infection and the degree of inflammation of the sac is moderate and non-purulent so far as clinical signs can reveal these conditions, while the amount of effusion is also not great, it will be well to remember the sage sarcasm of the able physician with whose remarks on the treatment of pericarditis I commenced this paper. The less it is treated as a separate entity the better. To add dermatitic discomfort by blistering to the general distress of the little patient in these circumstances seems wanton, because useless. When, however, inflammation of the pericardium is the initial event and there is reason to believe that the accumulated fluid is purulent in character, or its amount from physical signs great and in itself a source of danger to life, inactivity ceases to be masterly and interference by local methods not only justifiable but at times affording the only prospect of a successful issue. While the lines of general treatment remain the same, whether the pericarditis be associated with endocarditis or not, and are indicated by the nature of the infection and state of the heart and other organs, an early and non-purulent pericarditis may be treated by leeching, external warmth, or careful blistering like any other definitely localised inflammation. If purulent in character and recognised as such, or if large in amount and itself, as may be the case, threatening to life, the pericardial contents should be withdrawn by incision and drainage or by aspiration or trocar as may be indicated. As between these methods there can be no doubt that removal of a portion of parasternal cartilage, exposure of the sac, and careful incision or puncture would be a much safer and more scientific procedure than the blind puncture usually practised and which, as is well known, has on occasion proved immediately fatal by wound of the heart.

Dr. Samuel West relates a case of purulent pericarditis in a boy, aged 16 years, which was successfully treated by free incision and drainage[3] and also furnishes statistics of a considerable number of cases of serous, sanguineous, and purulent pericarditis surgically treated, some of which were in children.[4]

The local treatment of the chronic condition, the treatment of adherent pericardium is at present, and in some cases will always remain, outside the range of interference by local means. We have seen, however, that such adhesion is an aggravating incident in the carditis of children and apparently an incentive to cardiac hypermyosis, as I would suggest, we might term that degree of hypertrophy, which has been likened to the heart of an ox. As, moreover, we occasionally meet with cases post mortem which suggest that the adhesions might have been dealt with during life by surgical methods with comparative ease, we should not lightly dismiss the possibility of surgical interference in some of these cases. Could we discriminate these cases with some certainty during life it seems feasible that their treatment by surgical methods might remove one of the factors in the hypermyosis to which reference has been made and thus lighten the cardiac struggle without necessarily shortening the life of the patient. The point could, of course, only be fully determined by an exploratory operation as in other regions and carried further or abandoned as circumstances indicated.

I am aware that in speaking thus I do so on theoretical grounds and not from actual experience, but such thought has frequently preceded action ultimately justified by results, and I am not unhopeful that surgery, which has accomplished so much, may also in well-defined circumstances find a place in some cases of adherent pericardium. To return to our embryo, the growing organ requires a surplus of room to grow in; the overgrown organ requires more room to work in and it may be that tethered by extraneous adhesion, or not so restricted, the hypermyotic heart may in the future and in some cases be provided with such by the genius and courage of some surgeon bold enough to undertake the task. Human life is sacred, but not necessarily the pericardium, the division of which, with or without removal of ribs, might release, if only in a measure and for a time and even only in a few cases, an overgrown or overtaxed heart. I believe, however, that such a procedure would be justifiable more frequently than we are at present disposed to think. To the derision of a reviewer I advocated cardiac symphysiotomy some years ago[5]; but time was when opening the pericardium for any purpose whatever was regarded as unjustifiable. According to Dr. West[6] physicians such as Van Swieten and Laennec had to urge surgeons to perform even paracentesis pericardii and elaborated plans for its execution to induce them to act. Aseptic surgery should be able to go a step farther in this direction with less hesitation, and by releasing tethering and removing bone and cartilage provide the additional space which the enlarged organ demands for easier systolic contraction and which it gains at present by injuriously encroaching upon the territory of the lungs.

The consideration of the treatment of disturbances of cardiac action associated with pericarditis both acute and chronic does not strictly fall within the scope of this paper, but the general outline of treatment mentioned in connexion with the last case cited sufficiently indicates the mode of procedure and may serve to provoke discussion. I would especially call attention to the value of opium and of sufficient doses of the digitalis group in these circumstances. So long as a physiological antidote to the over-action of opium exists in the constitutional state of the patient, as manifested by violent and disordered action of the heart, usually associated with dilated pupils—the pupil of belladonna—children tolerate much larger doses of opium than is often supposed probable, while pushing the digitalis group, that is, carefully increasing their dose, frequently helps to steady a heart unaffected by smaller quantities of the same agents.

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[3] Transactions of the Royal Medical Chirurgical Society, vol. lxvi., p. 235.

[4] Ibid., p. 2

[5] Cardiac Failure, p. 89, 1897.

[6] Loc. cit., p. 256.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the Royal College of Physicians of Edinburgh was held on July 17th, Dr. John Playfair, the President, being in the chair. Dr. Andrew Balfour was introduced and took his seat as a Fellow of the College. Mr. Sydney Wilson Thompstone, M.R.C.P. Edin., Zungeru, Northern Nigeria, West Africa, was admitted by ballot to the Fellowship of the College. Dr. James Mair Rutherford and Dr. John McGibbon were admitted to the Membership of the College after examination. The Registrar reported that since the last quarterly meeting of the College 25 persons had obtained the licence of the College by examination. Dr. Francis Darby Boyd, C.M.G., was recognised as a lecturer on materia medica. The regulations regarding the Membership and Fellowship of the College for the ensuing year and the regulations for the triple qualification were approved.

APPENDICITIS AND GANGRENE OF THE VERMIFORM APPENDIX CONSIDERED AS SEPARATE DISEASES.[1]

BY JOHN D. MALCOLM, F.R.C.S. EDIN.,
SURGEON TO THE SAMARITAN FREE HOSPITAL.

THE object of this paper is to show that in a considerable number of cases of mischief connected with the vermiform appendix the initial lesion is a formation of a gangrenous patch in the wall of that part of the intestine, a condition which is frequently associated with an appendicitis beginning in the mucous membrane but which may arise independently.

Cases of appendicitis beginning in the mucous membrane.—In a very large proportion of cases the symptoms and the physical changes observed are easily understood as the effects of inflammation beginning in the mucous membrane and extending outwards in varying degrees. I have illustrated some of the conditions which may arise by short records of six cases.[2] I do not, however, propose to read these notes. All the patients recovered and there can be little difference of opinion concerning the relationship of the phenomena described to their causes. When the lumen of the appendix is quite open a continuous or repeated catarrhal inflammation induces an organic stricture and, if such a process begins at the tip, an obliteration of the whole canal may gradually take place without symptoms, the occluded appendix being discovered accidentally. On the other hand, when an inflammation of the mucous membrane of this tube is associated with an obstruction to the outflow of its contents the symptoms commonly attributed to an appendicitis develop. Recovery may follow so that no evidence of disease remains or after recovery is fully established from a clinical point of view the appendix may be found permanently dilated by muco-pus on the distal side of an incomplete stricture or peritoneal adhesions may alone indicate that previous mischief has existed. But an inflammation associated with an obstruction may bring about an extension of disease by ulceration of the mucous membrane and the ulcerative process may eat into, and penetrate, the wall of the appendix so that an abscess cavity forms in the adjoining tissues. This extension of inflammation is always preceded by a formation of serous adhesions, so that abscesses thus formed do not burst into the peritoneal cavity unless the parts are exposed to injury. A movement of the bowels may sometimes cause a sufficient strain to bring about a rupture but this rarely occurs. Two of my cases show that if the obstruction in the lumen of the appendix is relieved after an abscess has formed and if the abscess discharges freely through the appendix into the cæcum the patient may appear to recover, although a pus cavity still exists. One of the patients was sent to the country as convalescent and appeared to remain well for a fortnight, although she had an abscess as large as a pigeon's egg near the centre of her abdomen.

According to these views the importance of an obstruction in the lumen of the appendix as a cause of symptoms of appendicitis is very great. Indeed, it seems to me not too much to say that none of the ordinary clinical indications of this condition ever do arise unless the lumen of the appendix is obstructed. As in all other parts of the alimentary canal so in the appendix a catarrhal inflammation of the mucous membrane may be regarded as painless, unless its surface is stretched, or some obstruction to the muscular contraction of its wall exists and causes a colic. Similarly a catarrh of the appendix without retention of secretions rarely, if ever, induces a rise of temperature. Further effects of inflammation, such as sloughing, hæmorrhage, and the development of metastatic collections of pus, depend on the particular micro-organisms that are most active for mischief in individual cases. All the foregoing conditions are easily understood as the results of inflammation but there are other cases which require a different explanation.

Gangrenous changes in the wall of the appendix.—There are four conditions in which it is known that a local death of tissue may take place and may be unaccompanied by any clinical sign of the change except those which *follow* it. These are: (1) in senile gangrene; (2) in the case of a perforating gastric or duodenal ulcer; (3) in the wall of an ovarian tumour; and (4) in a fibroid uterine tumour. The evidence seems to me conclusive that a similar death of tissue may take place in a part, or in the whole, of the wall of the vermiform appendix without any indications preceding its occurrence. The cause of death in the conditions referred to is a matter of much interest but it has no bearing on my argument. The point is that a dead patch of tissue may exist whilst the individual appears for a time to be in perfect health and by this view it is possible to account for many of the phenomena connected with the vermiform appendix which are otherwise inexplicable. Case 7 is important in this connexion. The salient features of the history are as follows. A woman, aged 71 years, had a slight pain and tenderness about the middle of the ascending colon. After 30 hours there was some resistance over this part but the rest of the abdomen was soft and mobile. The temperature had gradually risen to 100° F., whilst the pulse was beating from 80 to 90 to the minute. The rectum was full of fæces and the bowels had not moved for two days. The patient did not appear to be seriously ill. No opiate was given. An enema was administered late at night and the bowels acted well. Next morning the conditions had altogether changed. The abdomen was immensely distended and very hard, the patient had been vomiting and retching for many hours, her pulse was 130, and she was obviously very ill, but there was no great pain, and the temperature was only 100·6° F. The abdomen was opened 44 hours after the onset of the illness. The vermiform appendix was situated outside the middle of the ascending colon. It was not adherent but was immediately surrounded by loose flaky lymph and the loin pouch contained a few ounces of slightly turbid serous fluid free in the peritoneal sac. The intestines were immensely distended and were emptied by incisions which were carefully closed but gaseous distension rapidly re-developed and death occurred early the next morning. The appendix had three well-defined gangrenous patches in its wall. These were not shrunken nor surrounded by a swollen or angry area and they were in continuity with the rest of the wall of the appendix, so that there was no rupture. The lumen was patent throughout and there was no stercolith.

This case suggested the view that I now advocate. It seemed that if these patches of dead tissue were the results of an inflammation there should have been a rapidly advancing high fever, continuing for some days before it terminated in gangrene, and all the parts around, not only in the wall of the appendix but also in the adjacent structures, should have been very vascular and œdematous. But evidences of an acute inflammation were wanting, whilst the symptoms and physical conditions may be fully explained as consequences of the passage of slightly irritating organisms through the patches of dead tissue *after* these had formed. Thus a spreading peritonitis of little virulence, causing a sero-purulent exudation, was first excited. An escape of greater numbers of the microbes or perhaps of some different micro-organisms accounted for the development of flaky lymph. Paralysis of the bowel with symptoms of intestinal obstruction and of septic infection inevitably followed, and the rapid pulse was due to the vomiting and general weakness. This case brought to my recollection one (Case 8) which came under my care ten years ago and in which the phenomena were exactly the same in many details. But in Case 8 the patient had long been subject to attacks attributed to pelvic inflammation and her last illness was ushered in by very severe pain. This initial symptom was probably due to a distension of the appendix. It is obvious that a stretching of a living tube, containing a gangrenous patch in its wall, must cause intense pain by dragging on the tissues adjacent to the dead area.

In these two cases the evidence that the gangrenous change was not due to an inflammation depends on the fact that the necrotic patches existed although signs of inflammation of sufficient intensity to be accompanied by a death of tissue were wanting. Other conditions point with equal certainty to the conclusion that gangrenous areas may develop without preceding symptoms. Dr. Howard Kelly and Dr. E. Hurdon quote two cases operated upon by Finney, in one of which the appendix was removed within three hours of the apparent onset of mischief and it was "gangrenous on one side and ready to perforate." In the other case, that of a young physician, the operation was performed within six hours of the initial complaint and "there was every reason to believe that the very first pain he felt was occasioned by the perforation."[3] Both cases recovered. There can be no doubt that in these cases the death of a patch of tissue in the wall of the appendix had occurred before there were any symptoms and that for a time the patients were apparently quite well, although in each a portion of the appendix was dead.

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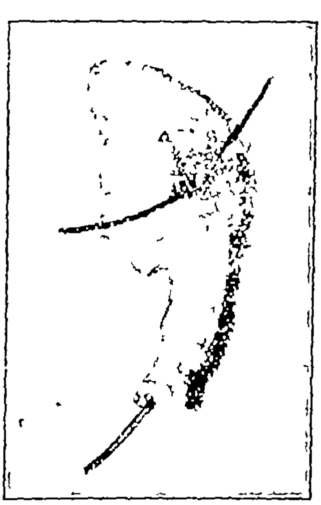
[1] Abstract of a paper as read before the Royal Medical and Chirurgical Society on June 26th, 1906.

[2] Three of these are published in full in the Clinical Journal April 11th, 1906) and in the Brit. Med. Jour. (July 14th, 1906, p. 71).

Spontaneous recovery from localised gangrene of the appendix.—It is difficult to understand how an area of necrosis in the wall of a hollow viscus can prevent an escape of infective micro-organisms until it has become so loosened that a gross perforation suddenly takes place, but the following cases throw light on this point. In Case 9 the patient, a woman, aged 58 years, was operated upon 19 days after a severe attack attributed to appendicitis began. Convalescence was thought to be thoroughly established, febrile symptoms and abdominal distension having subsided and the bowels being moved by purgatives without inconvenience. The appendix was universally adherent, chiefly to small intestine, but the attachments were easily separated by the finger as if the adhesions had just formed. The appendix had two holes in its wall close together, one being of oval shape and nearly half an inch long and both being surrounded by granulation tissue (Fig. 1). The small intestines were extensively adherent and on disentangling the coils two were found more firmly united than the others but still quite lightly attached. On each there was a granulating surface, the two making an area which had evidently been fitted upon the openings in the appendix. When the granulating surfaces were cut off and the raw tissues were sewn over the rest of the intestine showed hardly any sign that it had been adherent. There was no visible pus and the lumen of the appendix was not distended. The appendix was removed, the abdomen was closed without drainage, and the patient made a good recovery. Case 10 was in all essential details the same as Case 9 but the appendix lay outside the cæcum and there was a partial obstruction in its lumen, the distal part being distended by mucus, not by pus.

FIG. 1.



Appendix removed 14 days after recovery from an inflammatory attack. The openings were closed by adherent bowel. The proximal opening measured nearly half an inch by a quarter of an inch (see Case 9)

In each of these cases the patients appeared to be quite well when a perforation with loss of tissue of the wall of the appendix existed, the opening being sealed over by adherent peritoneum. If the development of these conditions had been caused by an ulcerative inflammation it would have been accompanied by the formation of a considerable abscess walled in by firm adhesions. Each of the patients undoubtedly passed through an inflammatory attack exactly simulating an appendicitis, but in each an obvious perforation without an abscess was found. Clearly an inflammation extending from the mucous membrane did not account for the phenomena observed. All the symptoms and pathological changes may, however, be fully explained in the following way. A gangrenous patch formed and the appendix became lightly adherent to adjacent peritoneum, either because of the escape of microbes which caused an adhesive exudation or because of the mere presence of the dead tissue. After a time the slough separated, became disintegrated, and was discharged through the appendix. Inflammation accompanied the separation and continued until a granulating surface formed and all tension ceased. But the inflammation affected that part of the peritoneum and that part of the wall of the appendix which had been adjacent to, and attached to, the dead patch, and its origin was therefore quite different from, and should be clearly separated from, that of an inflammation commencing in the mucous membrane. It is obvious that if in either of these cases a sudden increase of pressure had arisen within the wall of the appendix the adhesions would have been very easily broken down. In the case (No. 10) in which the appendix lay outside the cæcum the adhesions were so extensive and so well supported by the natural pressure of the cæcum against the abdominal wall that a localised abscess would probably have formed. Such an abscess when fully developed would exactly resemble one arising from an extension of inflammation from the mucous membrane by ulceration. In the case (No. 9) in which the perforation was closed by very slightly adherent coils of small intestine any considerable pressure within the appendix might have given rise to a rupture into the peritoneal cavity with a free escape of mucus and perhaps of fæces. Such a rupture might be accompanied by very acute symptoms, without preliminary warning, when the phenomena observed in Finney's cases above referred to would be reproduced But the rupture might be preceded by evidences of an inflammatory attack beginning in the mucous membrane as in the following case.

In Case 11, a woman, aged 37 years, had signs of a severe intra-abdominal inflammation, the temperature rose to 103·5° F., the pulse to 140, the abdomen became very hard and greatly distended, and the patient vomited frequently. I saw her in consultation after 36 hours. At that time the conditions were all improving, the sickness had stopped, the bowels had moved, and much flatus had passed and continued to be expelled through the rectum from time to time. The abdomen was quite soft and mobile, there was no pain, and I did not detect any tenderness except when I pressed on the neck of the uterus which had been curetted some months earlier. The temperature had fallen to 100° F.; the pulse was still as high as 130 but of fairly good quality. I thought the patient was recovering from the effects of over-indulgence in indigestible food. I did not see her again but I was informed that the conditions remained much the same for about 20 hours and then all the unfavourable symptoms returned and the patient died 12 hours later. At the necropsy two ruptures were found in the appendix, one having sloughy edges, and much fæculent matter had escaped. It seems to me that in this case the patient's condition had greatly improved when I saw her, because she was recovering from an attack of inflammation beginning in the mucous membrane of the appendix and that afterwards a gangrenous patch separated from the wall of this tube, adhesions which had formed gave way, fæculent matter escaped, and the patient rapidly died.

Conclusions as to the results of gangrene formation.—From the foregoing considerations it would appear that gangrenous patches forming in the wall of the appendix may bring about three well-defined conditions which are easily understood and are quite independent of inflammation beginning in the mucous membrane, although this also may be present. First, there may be an escape into the peritoneal cavity of micro-organisms which excite a serous, a sero-purulent, or a purulent exudation unlimited by adhesions. Second, the adjacent peritoneum may become adherent over a gangrenous patch and the latter separates and is discharged through the appendix, recovery taking place. Third, a gangrenous patch may thus become sealed off, but when it separates the adhesions also give way and a localised abscess forms or a rupture into the peritoneal cavity takes place. As the pathology and the consequences of gangrene formation are so different from those of inflammation beginning in the mucous membrane it is necessary that the two conditions should be clearly differentiated from a scientific point of view and as much as possible in practice.

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[3] The Appendix and its *Diseases*, by Dr. Howard Kelly and Dr. E. Hurdon, p 408.

The numbers of the cases of localised gangrene of the pendix.—These cases are very rare in proportion to the umber of cases of inflammatory mischief in the appendix ut they bulk very largely in the death-rate. Dr. elly and Dr. Hurdon found that out of 4028 necropsies three large hospitals there were 86 cases in which eath was due directly or indirectly to acute inflammatory disease of the vermiform appendix. Of these 6 deaths, "in 29 cases there was acute gangrenous ppendicitis with single or multiple perforations. In two of hese a gangrenous appendix had entirely sloughed away rom the cæcum." "In 25 cases inspection of the bdominal cavity at the time of the autopsy revealed no ign of any tendency towards limitation of the inflammatory rocess to the immediate vicinity of the appendix, nor was here anything pointing to a previous abscess in the region f it."[4] Probably in all these 25 cases death was due to angrene formation. But, as I have pointed out, there is eason for believing that in some cases a localised abscess nay develop around a gangrenous perforation. The deaths lue to gangrene may therefore be considerably more than 25 ut of 86; yet even if these figures indicate the full numbers of such cases the condition must be regarded as a very mportant one

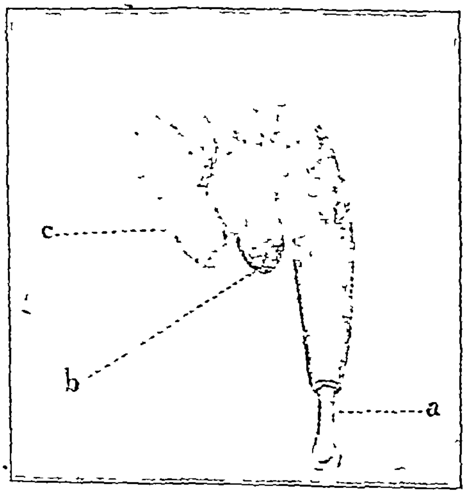
Diagnosis and treatment.—If we could make an exact diagnosis between the signs and symptoms of inflammation of the appendix beginning in its mucous membrane and those of the gangrene formation which occasionally occurs in its walls the treatment would be much simplified, but the differential diagnosis may be very difficult.

There are various indications of danger and rules of treatment which should be kept in view. The administration of opiates should be avoided if possible. On the other hand, laxatives and enemata may effect a cure and may be administered early in cases of inflammation, but they are contraindicated when gangrene exists. Hence whenever they are given in a case of appendix mischief preparations should be made for an immediate operation if urgent symptoms develop. In cases of very insidious onset a purge may prove beneficial by hastening the development of symptoms indicating the necessity for operative treatment. Nothing can be gained by watching such a case as No. 7 above recorded, even when the symptoms show no urgency Paralysis of the intestine is the most certainly fatal complication of an abdominal disease and every endeavour should be made to anticipate its onset by operative treatment in appendix cases. But the differential diagnosis between cases in which a gangrenous patch is present and those in which an inflammation spreading from the mucous membrane exists is often so uncertain that the propriety of operating in every case in which appendix mischief is diagnosed must be considered An operation for the removal of an inflamed appendix, if undertaken before septic mischief penetrates its wall and when the patient is suffering from a first attack, should be one of the safest in surgery. But when old adhesions exist great difficulties and dangers may arise from an attempt to remove the acutely inflamed appendix. Such cases would, of course, be practically eliminated if all were operated on early or in the first interval, a course which would lead to the saving of many lives. There would still, however, be a number of unrecognised chronic cases becoming acute and also of those in which the patients refused operation during an interval. Hence the surgeon is liable to meet with circumstances in which if he operates and finds many old adhesions he can only remove the appendix with great danger to the patient who may be in no fit state to undergo a serious operation, whereas if he does not operate and the patient happens to have a gangrenous patch infective mischief may rapidly obtain such a hold on the peritoneum that no treatment will be of any use. There can be no doubt, however, that the majority of cases of appendicitis recover without an operation being even thought of, and cases in which mild but decided febrile symptoms develop along with a well-defined localised swelling may be watched with little anxiety. On the other hand, in cases of gangrene formation with a sudden gross perforation the onset of the illness may be so acute that an immediate operation is clearly indicated, and Finney's cases show how successful this treatment may be. There are, however, many cases in which both inflammation and gangrene formation occur and the two conditions seem to be frequently related in such a way that the signs of the inflammation are subsiding when those of gangrene formation develop. In this way an adequate explanation is afforded of the "period of repose" so frequently observed in these cases. Hence, assuming that there are sufficient grounds for definitely diagnosing an appendix lesion, all cases beginning very acutely or in which urgent symptoms suddenly develop should be operated on immediately

When there is any doubt as to the course to pursue the case must be considered with great care and probably more harm will be done by unwisely avoiding an operation than by a *too* active treatment, provided, of course, that the procedure is carried out with reasonable discretion and consideration. I would urge, however, that the difficulties and dangers do not arise so much from an appendicitis as from the fact that the patient, or even an individual who appears to be in perfect health, may have a gangrenous patch in his appendix causing no symptoms whatever, but which after a time, either slowly or with the greatest rapidity, may induce conditions that terminate certainly in death. The fact that a sufficiently early operation will bring about the recovery of a large number of patients in these desperate conditions is a strong argument in favour of prompt interference.

Case 12 suggests a line of treatment that may occasionally be desirable. The abdomen of a lad, aged 18 years, was opened during an acute appendicitis but the operator did not remove the appendix because of its close attachment to the bowel, the inflamed and softened condition of the parts, and the state of the patient. A tampon was inserted and recovery followed without pus formation. The difficulty was due to a previous attack 12 years earlier. The operation was performed abroad by an experienced surgeon and when the patient was quite well I successfully removed the appendix. It was acutely bent near its tip (Fig. 2) and there was a constriction about half an inch from the cæcum so narrow that a bristle would not pass. The part between the bend and the constriction was distended by a thick yellowish fluid. A point of interest in this case was that there were five or six lymphatic glands, some of them half an inch long, clumped together close to the appendix. It would appear that this quite unusual arrangement had been produced as a defence against the invasion of bacteria. Obviously a source of danger had existed from the date of the first attack at the age of six. There is no doubt that it was wise not to remove the appendix when the abdomen was first opened, for the operation which I performed would have been extremely formidable if the circumstances had not been favourable. Certainly it would be better occasionally to undertake two operations as in this case than to delay interference and to miss the opportunity of curing a patient with a gangrenous patch, or to persevere with an operation in order to obtain an immediate success under desperate conditions when a safer,

FIG. 2



Appendix from Case 12. a, Constriction, b, tip; c, glands (several were separated during the operation) although less brilliant, method is available. In the circumstances of this case the absolutely essential part of the operation is to ascertain if a gangrenous patch exists. If there be no such lesion the removal of the appendix is not urgently called for, but, as a rule, its excision will be easy and should be accomplished. When difficulties are great it may be wiser that drainage should be provided for and that the appendix should be left for the time. To discuss the propriety of these proceedings involves a confession of inability to make an exact diagnosis, but if the view I advocate is correct it is certain that an urgent necessity for operative treatment may arise in connexion with the vermiform appendix before there are any symptoms at all. The conclusion that a most serious condition may exist when a diagnosis is impossible does not seem to be very helpful, but a recognition of this fact enables us to understand much in these cases that cannot be otherwise explained and to understand a condition is the first step to its rational treatment.

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[4] Loc. cit., p. 212.

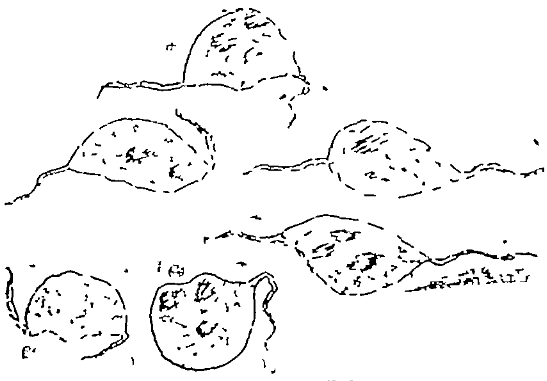
Portman street, W.

FLAGELLATED PROTOZOA IN A PERINEAL ABSCESS.[1]

BY E. HENDERSON HUNT, M.A., M.B., M.CH. OXON., F.R.C.S. ENG.,
MEDICAL OFFICER TO H.H. THE NIZAM'S GUARANTEED STATE RAILWAYS COMPANY, HYDERABAD.

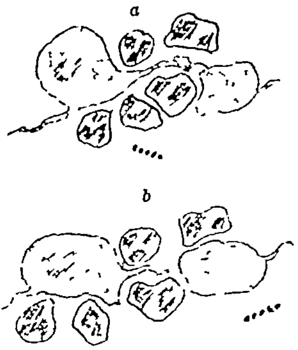
THE patient, a Eurasian, aged 48 years, was admitted to the Railway Hospital on Dec. 16th, 1904, complaining of a "pressure pain" in the pelvis and difficulty in micturition and defæcation, which had commenced three days before. He had formerly been in many countries, including England, Egypt, &c., while working as a marine engineer. Apart from gonorrhœa in 1890 and malaria in 1903 he had always been healthy. He had never passed blood or pus in his urine nor had he suffered from any rectal troubles. He remembered swallowing a fish bone a few weeks before admission to hospital. On admission the patient looked ill, the temperature being 101° F. and the pulse 110. The lungs and heart were normal as also was the urine. In the blood no malarial parasites were to be seen but there was a slight leucocytosis, chiefly multinuclear. Per rectum a hard tender lump was felt in the region of the prostate. The patient was watched and on Dec. 22nd the lump became suddenly larger and with two fingers in the rectum fluctuation was detected. A deep incision was then made in the perineum and a cavity was opened containing about an ounce of pus and much evil-smelling gas. This cavity was at a considerable depth from the surface, in front of the rectum, and apparently between the layers of the triangular ligament. The urethra, the prostate, and the bladder seemed to be in no way involved. The pus was examined fresh at once. Swarms of very active streptococci in long and short chains were seen. There were also large numbers of flagellated bodies, each rather larger than a pus cell. These presented a very striking appearance from their extraordinary activity. They were more refractile than the pus cells. The outer coat was very thin and easily protruded when the organism came in contact with pus cells. At first two or three darker masses were seen inside resembling nuclei. The rest of the body was filled with fine granules. The flagella were two, situated nearly, but not exactly, opposite each other. These moved freely and seemed to pull the organism along among the pus cells. The pus was placed in a warm chamber and after six hours most of the flagellated bodies had become circular and looked much smaller. The flagella were shorter and difficult to see. The movements were almost purely rotary but still rapid, numbering as an average 20 complete turns in 15 seconds. Those which had become stationary were difficult to pick out among the pus cells. When living they resisted taking up weak stains which coloured the pus cells well. It was remarked that the rotation was invariably in one direction, the apparent movement being as the hands of a clock. In no stained specimen could this organism be seen. Various methods were tried but all were equally useless. The urine and fæces were examined but no similar bodies were seen.

FIG. 1.



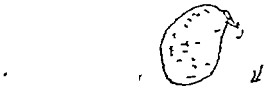
Six fresh specimens. $\frac{1}{12}$th. Flagella long and very active

FIG. 2



a and *b*, Fresh specimens $\frac{1}{6}$th. Showing differences in shape after an interval of a few seconds.

FIG. 3.



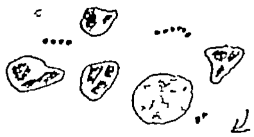
$\frac{1}{12}$th. After six hours. Rapid rotation. Short flagellum seen.

The patient made a rapid recovery and the wound closed as soon as the drainage-tube was taken out. He himself gives as the cause of his trouble the fish bone which he remembered swallowing. The situation of the abscess would certainly be compatible with this, for the prostate and urethra seemed in no way involved. The *flagellated* bodies might perhaps have been present in the rectum and, either by means of the fish bone or some other agency, have reached the tissues outside. The smell of the pus strongly suggested bacillus coli communis but none were found either in film preparations or in cultures.

This case shows the importance of examining pus immediately and alive. It is impossible to detect such protozoa in specimens prepared by any of the ordinary stains. It may well be that such protozoa play an important and unsuspected rôle in the causation of many forms of suppuration and that their presence is not detected owing to the fact that the methods commonly used in the examination of pus are not suitable for their demonstration.

Secunderabad.

FIG. 4.



After six hours Showing the relative size of pus cells Rotation rapid in the direction of the arrow. $\frac{1}{6}$th. No flagella visible.

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[1] For various inevitable reasons there has been much delay in the publication of Dr. Henderson Hunt's interesting note.—ED. L.

A FEW SUGGESTIONS FOR THE FUTURE OF CONSUMPTIVE PATIENTS OF THE WORKING CLASSES.

By M. S. PATERSON, M.B. Durh.,
MEDICAL SUPERINTENDENT, BROMPTON HOSPITAL SANATORIUM, FRIMLEY;

AND

F. C. SHRUBSALL, M.D. Cantab.,
RESIDENT MEDICAL OFFICER, BROMPTON HOSPITAL.

AT the present time, when so much attention is being paid to the provision of proper facilities for the treatment of tuberculosis among all classes of the community, how best to advise consumptive patients after such treatment as to their future career is becoming more and more a matter for earnest consideration.

The initial requirements are known to all and indeed are obvious. Each individual should be placed under medical supervision at a sanatorium or under similar conditions at home if he can afford to pay for treatment. If unable to do so he should be sent to some institution, whether a chest hospital or a sanatorium, more or less supported by voluntary contributions. If ideal conditions prevailed he should remain therein until either the disease were arrested or he were released by death. This, however, is not at present practicable, partly on account of the paucity of such institutions and the insufficient support rendered to those that are actually in being, and partly from the necessity for material aid to tide the family over the period during which the bread-winner is undergoing treatment and education, a purpose for which no due provision has as yet been made. The best that can at present happen is for a patient to be sent to some institution for a time, rarely exceeding nine months, during which, if he is fortunate, his disease becomes more or less arrested, and he is instructed in healthier modes of life and how to take precautions to avoid being a source of risk to others. Even among those who can afford in some measure to pay for treatment a long course is rarely possible, for when both the patient and his household have to be supported on a diminished income reserve funds are rapidly exhausted. Also a patient's occupation can seldom be kept open for an indefinite period, so that the individual has to choose between returning to work, it may be somewhat prematurely, and seeking fresh employment after a longer convalescence, with the prospect of a diminished wage and lost opportunities for promotion. Recognising, then, the imperative necessity for each patient to earn his own living the question to be considered is the nature of the employment he should seek. We all know the ideal; what is needed is a practical solution of the difficulties that confront us.

It would appear that sufferers receive advice and suggestions of the most diverse and often unpractical nature from all who come in contact with them. Even members of the medical profession cannot be entirely absolved from the charge of at times giving advice hastily without considering the occupation, ability, and financial position of the individual patient, which are probably of more importance in this connexion than the actual extent of his disease. It is a constant experience on inquiring what a patient proposes or hopes to do on leaving a chest hospital or sanatorium to obtain such answers as: "I have been told I must get light open-air work" and "I have been advised to live in the country." Others appear to have received the impression that they should take up gardening as a means of livelihood, or go for a voyage as a ship's steward, or emigrate to Colorado, the Cape, or Australia. So frequently does this occur that doubts arise whether those who give the advice in any degree realise what they are recommending.

The natural inquiry to follow the narration of any of the foregoing suggestions is, "Have you a trade and, if so, what can you earn?" A large proportion of hospital patients are unskilled labourers but when such a one has a trade it may be found that he earns £2, at times perhaps even £3, a week. If he be then further asked whether he has any skilled knowledge of outdoor work, it almost invariably appears that he has not and that some 15*s*. to £1 a week is all he could hope to earn in very favourable circumstances. Whether, then, is it wiser for that man to return to an occupation at which he has a definite market value or to go out among the flotsam and jetsam of unskilled, often unemployed, even though nominally open-air workers? Two points have to be borne in mind—the safety of the community and the welfare of the individual. As regards the former, it may be affirmed that there is no risk apart from the drying up of expectoration which allows the living bacilli to be blown about as dust. Fraenkel's recent work has shown that the risk of infection, even in the immediate proximity of the patient, from the spray inevitably produced by coughing is so small as to be nearly negligible, and, indeed, were it not so it is difficult to see how the *personnel* of a hospital for consumption could reside therein for years and yet remain free from the disease.

The extreme popular view of the contagiousness of consumption with the naturally associated tendency to treat all sufferers as lepers is unjust, unwarranted, and an economic error. It may be that the disease in any individual has been arrested, that he has no expectoration, or if any that it has by repeated examination been found to be free from tubercle bacilli; such a person could with safety to others be sent to work in any surroundings. Even a quiescent case who has not advanced so far towards recovery is of very little danger, provided that he has been educated to use a sputum flask and can be trusted not to spit about or let his expectoration dry but to attend to its safe bestowal—that is, if he is an ordinary careful intelligent human being. It is also to be remembered that an arrested case of pulmonary tuberculosis returning to an indoor occupation will be an apostle of the advantage of leading a better hygienic life and so should by his example and precept tend towards diminishing the prevalence of the disease.

For the welfare of the individual the most important considerations are the provision of fresh air at home, good food, and reasonable hours and conditions for rest; in other words, an ordinary healthy life out of working hours. This can only be obtained at a price, hence the necessity to earn the best possible wage. No amount of fresh air during work will compensate for the lack of sufficient nourishing food or bad accommodation during the rest of the day; there is a certain tendency to forget that starvation is a more serious trouble than tuberculosis.

Two of the greatest risks to the patient whose disease is arrested are overstrain and great fatigue which appear to have a very special influence in bringing on a recrudescence. From this standpoint it would seem preferable that any patient who is a skilled workman should return to his former occupation, for what can be done with facility will be done with the least unnecessary expenditure of energy. The hardest and most continuous manual labour usually falls to the lot of the unskilled labourer, such as any artisan would become should he leave his trade. Although it has been shown by sanatorium experience that those who have led sedentary lives are capable, despite their affliction, of being trained up to do hard manual labour to their physical benefit and without any harm soever resulting, this is only because the hours of such work are regulated and periods of rest interposed in a manner impossible in everyday life. We do not by this mean to suggest that manual labourers accustomed throughout their lives to such toil cannot return to their occupations, but rather the contrary, since such work comes easier to them.

From the statistics of the German sanatoriums it would appear that cases discharged as quiescent or arrested are capable of returning to their former occupations for periods of three, four, or more years and nowhere are there any definite facts to show that this is not equally possible in this country. An arrested case should be safer, whatever his occupation might be, than he was before he acquired his illness, since he has learnt how to live in the healthiest possible manner For the same reason a quiescent case should be no worse off than before.

Fresh air throughout the whole day is no longer so essential once the processes of disease have become quite quiescent. Less good air will then suffice for a time provided it be not absolutely deleterious, and if it be it is wrong that anyone should work under such conditions. The skilled man who at his own trade could earn a fair competence would have to work longer hours and at a greater strain in an outdoor occupation for a wage which would scarcely support life, since he would have to compete in the labour market against those who, having been born and bred to the work, would naturally secure all the better posts. The problem of the clerk, shop-assistant, and warehouseman must be considered in the light of the same reasoning—the relative economic value of his work, his wage earning capacity in relation to the cost of living, and his surroundings when off duty. He must earn sufficient to enable him to procure reasonable conditions out of working hours. Vanmen, tram and omnibus drivers and conductors, and most classes of railway servants could not do better than remain at their occupations. As regards the unskilled labourer there is no *a priori* reason why he should not go into the country to look for work but in recommending such a course it must be remembered that this is very difficult for even a perfectly healthy man to obtain.

It should not be forgotten that many patients suffering from pulmonary tuberculosis in a more or less active stage, often with tubercle bacilli in their sputum, remain at in-door work, at the same time attending the out-patient departments of our hospitals. It must be the experience of many that these individuals continue to work under such conditions for many years, so that there is a reasonable prospect that had they had the advantage of the hygienic education and the improvement of their general health, to say nothing of some degree of arrest of the primary disease which would have followed in-patient treatment, they might have remained self-supporting for an indefinite period.

The alternatives to following his own trade usually suggested to a patient, as we maintain frequently without due consideration, are: (*a*) to obtain some open-air occupation, preferably in the country, in which case gardening is usually recommended; (*b*) emigration; and (*c*) going to sea. These may be briefly dealt with *seriatim*.

(*a*) Many patients shortly before their discharge from hospital talk of looking for some such open-air occupation, but on being pressed appear to have no idea what variety of work they require nor how to proceed to find it. From the stories of patients re-admitted to hospital after some lapse of time it appears that if they have remained in town a large number have become tram and omnibus conductors, frequently with good results. This course, however, cannot be recommended save to those with little or no expectoration, since a man making use of a spitting flask would almost certainly be complained of by some zealous passenger and would stand little chance of obtaining further employment. The wages earned are also not excessive. In spite of these objections this occupation is one of the most suitable for an unskilled patient. Others have tried to serve as insurance agents or travellers on a small scale. These more often than not have proved failures both economically and medically. Want of knowledge of their business has prevented their earning enough to live decently and at the best an agent's life about town is far from being in the open air but rather involves the risk of exposure to all kinds of infection in the houses he must visit. Also it is our experience that there is a tendency for such men to indulge too freely in alcoholic stimulants, a course productive of great evil in cases of pulmonary tuberculosis. Patients but rarely appear to have endeavoured to act as gardeners for obvious reasons. If more than a mere pittance is to be earned some degree of technical skill is required, to acquire which a proper apprenticeship must be served. It is as absurd to expect an untrained patient at once to become fit for such an occupation as it would be to advise him to act as a fully trained druggist. Another feature which militates against gardening as a suitable trade for consumptive individuals is that to earn a fair wage a gardener must have a knowledge of, and carry out, hot-house work, whereby he runs grave risks of catarrhal attacks which probably predispose towards a recrudescence of the pulmonary tuberculosis. For the beginner employment is uncertain and the accommodation for the labourer and his family is often of an unsatisfactory nature. In addition to which it is improbable that in the country the other members of the family would be able to do much to add to the income, and if they are dependent on the patient as sole bread-winner their fare will be scanty.

(*b*) Emigration opens up still more serious problems. When a patient seeks advice on this subject the most important question to ask is, Has he definite employment to go to and, if so, are the wages such as reasonably to support him under the prevalent local conditions? Failing work, definitely arranged for in advance, has he friends to stay with who will keep him until he can obtain employment? Also, Has he a knowledge of any trade or other occupation for which there is a demand? If these questions be answered in the negative such a patient should be advised not to go, however much a climatic change might be expected to benefit him. His health might not improbably suffer on the voyage and his slender capital be rapidly exhausted while in search of employment. Everyone who has been to the colonies must have seen some such half invalids reduced to extremities. It is often overlooked in England that it has been found necessary to establish sanatoriums in South Africa, Australia, and Canada, the very places to which our consumptives are advised to emigrate. To emigrate with inadequate means and without definite prospects is a task not lightly to be undertaken successfully even by those in perfect health and with some useful knowledge; far less, then, by one town-bred, just recovering from a severe illness and without experience of outdoor work. If, however, the patient has a post offered him in advance or friends to go to his state of health can be considered in relation to emigration. Should his disease be arrested no obstacles need be placed in his way other than to warn him that he is going far from home and may be in difficulties should he relapse. If the disease be only quiescent the case must be put much more strongly and the patient should thoroughly understand the meaning of the risks which he incurs. The conditions thus far being satisfied inquiry may be made as to where he proposes to go. Many patients will be found who have the haziest notions of geography and believe that all places out of England are health resorts. They believe the supposed climate is everything and are unaware of the distances and variations met with in all the colonies, the United States, and the Argentine, many parts of which are climatically inferior to England. They cannot realise that Northern Territory is not Darling Downs, Durban not the Drakensberg or the Karroo, Quebec or Chicago not the slopes of the Rockies; that it is not as healthy to serve in a store at Denver as to be ranching, to tend behind a bar in Johannesburg as to farm. Lastly, the economic aspect should be again clearly placed before every patient desirous of going abroad, since many deceive themselves as to the relative value of wages. Especially is this the case with regard to Johannesburg, where all the necessities of life are so much dearer that even with better wages many—nay, most—artisans write home that they are really worse off than in England and in some cases though in full work find themselves without sufficient money to procure proper food.

(*c*) Going to sea is perhaps less frequently advised than a few years back. Most patients who mention going to sea propose to do so in some working capacity. This on investigation resolves itself into seeking a berth as ship's steward or, in the case of clerks with somewhat better attainments, as a purser's assistant. Now, however much, or little, open air a passenger in a liner may secure neither of the above categories could be described as sharing therein. That all who go to sea spend their time on deck fanned by appetising salt breezes is a pure popular delusion. The purser's assistant usually spends his days in a small, very stuffy cabin whether at sea or in port; his nights under similar conditions. The steward lives in still worse quarters—crowded out, heavily worked, with few opportunities for sleep, and in the tropics the chances are poor enough for anyone. At the beck and call of everyone, with little time off duty, he lives practically between decks in adverse circumstances everywhere and always. The popular idea is that stewards, however bad their quarters—and they are usually so near the water-line that the scuttles can never be opened—have always the opportunity of sleeping on deck. Now, in bad weather, when their quarters are naturally at their worst, this is obviously impracticable. As tuberculosis is far from uncommon among ship's stewards anyone following this occupation must pass his time of rest in an ill-ventilated and infected atmosphere. This is the more so as any one desirous of keeping his berth would be unable to use a spitting-flask, which would be detected, and so must either swallow his expectoration at his own risk or use his handkerchief, to the risk of others when the sputum dries and the bacilli escape as dust.

Our conclusion is that so far as possible each individual should return to his own trade and that those without a trade should be largely governed in the selection of an occupation by their wage-earning capacity thereat. If the only result of the treatment of pulmonary tuberculosis be the production of large numbers of unskilled outdoor labourers can this be considered an economic success? The matter is one over which there must obviously be some difference of opinion and we set forward our views in the hope that they may at least draw attention to the subject and so help the unfortunate consumptive to be advised thoughtfully as to his future.

THE PASSAGE OF SPIROCHÆTA DUTTONI FROM MOTHER TO FŒTUS.

BY ANTON BREINL, M.D.,
ASSISTANT LECTURER IN TROPICAL MEDICINE, LIVERPOOL SCHOOL OF TROPICAL MEDICINE;

AND

ALLAN KINGHORN, M.B. TORONTO,
JOHNSTON COLONIAL FELLOW, UNIVERSITY OF LIVERPOOL.

(From the Runcorn Research Laboratories of the Liverpool School of Tropical Medicine.)

IN a publication on *Spirochæta obermeieri* Albrecht states that he found the parasites in four fœtuses, seven months old, from mothers who were suffering from European relapsing fever. Spitz made a similar observation in the case of a five-months' fœtus, finding the parasites in an intracranial hæmorrhage. In our experimental work on *Spirochæta duttoni*, the organism of African relapsing fever, we have been able to demonstrate the passage of the parasites from mother to fœtus in the case of four rats and one guinea-pig.

Experiment 1092 C.—Rat inoculated on April 3rd, 1906, with heavily infected blood. After showing spirochætæ for 16 consecutive days it was killed for subinoculation. The heart blood showed from 20 to 30 parasites to a field (Zeiss $\frac{1}{12}$ oil immersion, No. 4 ocular). The heart blood of three half-grown fœtuses and that of their placentæ were examined with the following results:—

Placenta I., 1 to 2 spirochætæ per field: Fœtus I., 1 spirochæta to film
„ II., 6 „ 8 „ „ „ II., 4 spirochætæ „
„ III., 1 „ 3 „ „ „ III., 1 spirochæta „

Film preparations of the brain, bone marrow, and spleen of one fœtus were examined. Parasites were found only in the preparations from the spleen.

Experiment 1084.—Rat inoculated on April 6th. Three days later, when the blood contained innumerable spirochætæ, it was killed. The fœtuses (seven) were nearly mature. The placentæ were darker in colour than usual but otherwise presented no macroscopical changes. In blood from the uterine vein the spirochætæ were present in very large numbers and in the placental blood they were in such numbers that in the preparation nothing but large bundles of spirochætæ could be seen. In preparations from the umbilical vein one spirochæta was seen in from 5 to 30 fields. The fœtuses showed varying numbers, on an average one to three fields, though in some fields as many as ten spirochætæ could be counted.

Experiment 1178 C.—Rat inoculated on May 26th and killed three days later, when the heart blood showed from 70 to 100 parasites to a field. The fœtuses (seven) were nearly mature. The blood in the uterine vein showed about the same number of parasites as the heart blood.

Placenta.	Umbilical vein.	Fœtus.
I. 60 to 100 per field.	1-5, 1-9, 1-30 fields.	Negative.
II. 30 „ 40 „ „	—	„
III. 10 „ 40 „ „	1-2, 1-4, 1-48 fields.	1 in film.
IV. 3 „ 30 „ „	2-1, 1-6 fields.	1 „ „
V. 30 „ 100 „ „	1-7, 1-78, 1-90 fields.	2 „ „
VI. 30 „ 100 „ „	—	2 „ „
VII. 10 „ 40 „ „	1-57, 1-70, 1-100 fields.	3 „ „

Subinoculations were made from this rat and the fœtuses to ascertain whether the spirochætæ in the fœtal circulation were still infective and as virulent as those in the maternal blood.

Experiment 1182.—Two rats were inoculated from the mother. Both showed many parasites in the peripheral circulation after an incubation period of four hours and passed through the usual course of the infection.[1] Another rat inoculated with three cubic centimetres of citrated heart blood from three of the fœtuses showed two spirochætæ in a preparation of the peripheral blood after an incubation period of six hours. No parasites were seen for the next *two days*, but on the fourth day they were again present and the rat then passed through the ordinary course of infection.

Experiment 1255.—Rat inoculated on July 3rd and killed three days later. The heart blood showed *from* one to two spirochætæ per field. Preparations from the heart blood of ten half-grown fœtuses were examined and parasites were found in very scanty numbers (never more than two to a thick film) in eight of these. In the placental blood there were on an average from one to two spirochætæ per field.

Experiment 1152.—Pregnant guinea-pig. Inoculated on May 13th and became infected after an incubation period of six hours. It died on May 18th and although no spirochætæ were seen in the blood preparations made after death a subinoculated rat showed the parasites on the following day. The two fœtuses were about three-quarters mature. Although preparations of their blood were examined carefully no parasites were found but the inoculation of a rat proved positive after a prolonged incubation period of six days and the infection ran its usual course.

In order to see whether there exists any inborn immunity two young rats, from four to five weeks old, born while the mothers were heavily infected, were inoculated with blood containing spirochætæ. They showed no immunity but became infected and passed through an attack identical with that observed in normal rats of the same age. On a third rat ticks were fed and the parasites appeared in the peripheral circulation after five days, the usual incubation period.

The above experiments lead to the following conclusions: 1. *Spirochæta duttoni* passes through the placenta from the circulation of the mother to that of the fœtus. 2. The majority of the fœtuses carried by an infected mother are themselves infected. 3. The parasites are found in the placenta in approximately the same numbers as in the maternal heart blood, but, on the contrary, occur in very scanty numbers in the fœtal circulation. 4. The spirochætæ in the fœtal circulation show no morphological changes. 5. Infected pregnant rats show no tendency towards abortion, but few of their young, in comparison with those from healthy mothers, reach maturity. 6. The young born of infected mothers possess no marked inborn immunity against infection either by means of direct inoculation or through the bites of ticks.

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[1] Breinl and Kinghorn: Observations on the Animal Reactions of the Spirochæta of the African Tick Fever, THE LANCET, March 10th, 1906, p. 653.

A CASE OF CARDIAC SYPHILOMA WITH BRADYCARDIA AND OBSTRUCTION OF THE INFERIOR VENA CAVA:

THE AFTER-HISTORY AND A POST-MORTEM RECORD.[1]

BY CHARLES W. CHAPMAN, M.D. DURH., M.R.C.P. LOND.
SENIOR PHYSICIAN TO THE NATIONAL HOSPITAL FOR DISEASES OF THE HEART, SOHO-SQUARE.

IN the session 1897–98 of this society I showed a man, aged 48 years, whose case is the subject of this communication, under the heading "A Case of Bradycardia with Obstruction of the Inferior Vena Cava." The action of the heart was slow and there was a mitral systolic murmur. There were greatly distended and varicose veins over the middle and right side of the abdomen and a similar condition was seen on the outer side of the right leg. This condition, so far as the abdomen was concerned, had existed for at least five years, while the veins of the leg had only recently become dilated. There was a history of an itching sore on the penis 20 years previously. There had been no secondary symptoms and, as the sore had been of little or no inconvenience to the patient, only a short local treatment had been adopted.

During the following session I read a paper on the same case entitled "A Case of Obstruction of the Inferior Vena Cava, probably Syphilitic." In this paper I went fully into the history of the case and detailed the conditions found on examination. A provisional diagnosis was made of obstruction of the inferior vena cava due to pressure from a gumma or to thrombosis from phlebitis. Arguments in favour of the syphilitic origin of the disease were given together with an account of the treatment adopted, the paper concluding with references to recorded cases of syphilitic affections of the circulatory system and to literature bearing on the subject. The account of the case when exhibited and the report of the paper are to be found in Vols. XXXII. and XXXIII. of the Transactions of the Clinical Society.

Up to May 6th, 1905, the man had been a more or less constant attendant at the out-patient room, which means that I had him under observation for eight years, and that he had had dilated abdominal veins for nearly 14 years. There was nothing special to note beyond that he was for the greater part of the time under iodide of sodium, that the pulse-rate ranged between 33 and 44 to the minute, and that there was an entire absence of syncopal attacks. He was never well if the treatment was suspended for more than two or three weeks. He was able to continue his work until his fatal illness.

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[1] A paper read before the Clinical Society of London.

Early in June, 1905, I was informed that the patient had been admitted into the London Hospital for suppurating appendicitis and that an operation was performed but that he succumbed shortly afterwards to general peritonitis. I at once communicated with the hospital authorities, and it is mainly owing to their courtesy that I am able to give the following account of the post-mortem examination:—

"The abdomen was distended and covered with varicose veins. On opening it there was evidence of appendix abscess and general peritonitis. In the pleuræ there were a few thin adhesions about the right apex and both cavities were dry. At the apex of the right lung there was a patch of obsolete tubercle. The root of this lung with the neighbouring vessels, glands, and mediastinal tissues were firmly matted into a mass of fibro-calcareous material. The rings of the larger bronchi of the right lung were calcified. The pericardium contained an excess of clear fluid. The two surfaces were free. There was great increase of epicardial fat over the right auricle and at the base of the heart. Over the left ventricle and auricle the pericardium was thick and opaque in places. The heart was pyriform in shape, the right side being about the same size as the left; it weighed 15 ounces. The heart muscle was brown and tough with visible strands of fibrous tissue running through it. The left ventricle was dilated but not hypertrophied; the right ventricle and auricle were dilated and contained a small black clot. The cavity of the left auricle was greatly diminished and constricted in its middle to a ring which just admitted the tip of an index finger. The cause of this narrowing was a dense calcareous mass situated beneath the endocardium. This condition of calcification affected the whole circumference of the left auricle, the interauricular septum, the aortic sinus, and first inch of the aorta, being in all places deep. The interventricular septum was thick and muscular.

The valves.—The mitral curtains were thin and pliant, but just above the mitral orifice the left auricle was narrowed by the ring already described. The aortic cusps were thin and pliant. The pulmonic and tricuspid valves were natural. The coronary arteries were narrowed at their orifices but further down were unchanged. The aorta contained many patches of atheroma.

Summary of the condition of the heart.—The calcareous mass produced a condition amounting to mitral stenosis; it also narrowed the left auricle, partially occluded the coronary vessels, and affected the interauricular septum. There was great fibrosis of the myocardium.

The kidneys, beyond a few cortical cysts, presented no gross changes. The liver weighed 56 ounces; it was firm and bile-stained. The left testicle presented a typical diffuse fibrous gummatous condition.

Microscopical examination.—Sections were cut of the heart muscle and left testicle. The condition of the latter confirmed the macroscopic appearance of gumma. The heart muscle showed an advanced general diffuse fibrosis. The walls of the main division of the coronary artery were apparently natural, but there was considerable increase in the adventitia of the smaller arterioles. There was no obliterative proliferation of the intima."

There are two points that may be specially noted. 1. That the initial lesion was so insignificant to the patient that but little treatment was adopted. 2. It is probable that the disease was still in progress when the patient first came under my care in 1897, at which time a lump of the size of half a walnut at the back of the neck was noted and which completely disappeared under mercurial treatment. The prolongation of the patient's life may fairly be attributed to the recognition of the true nature of the case and the vigorous and prolonged treatment.

It is an interesting question whether the bradycardia which had been present for at least eight years was due to myocardial invasion with gummatous deposit and subsequent fibrosis or to an early implication of the orifices of the coronary arteries. The affection of one testicle only is in accordance with the observations of Wilks and Moxon who considered that the unilateral presence of gumma is a ready indication of syphilitic taint.

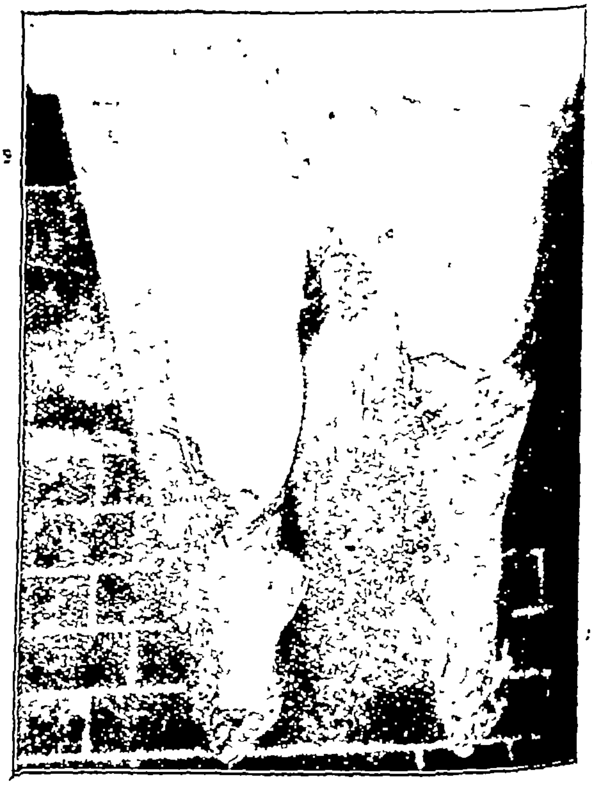
Attention may here be called to a valuable paper on Cardiac Syphiloma by Sir Dyce Duckworth in Vol XXIX. of the Transactions of the Clinical Society. I would particularly refer to the author's closing remarks which I cordially endorse, for they voice the reason and apology, if need be, for bringing this case to your notice for a third time. They are: "The great object is to recognise the nature of the disease as soon as possible and treat the patient by large doses of iodide of potassium. On these lines the best results may be anticipated."

Weymouth-street, W.

GANGRENE OF BOTH FEET AND LEGS DUE TO EMBOLISM AND THROMBOSIS OF THE ABDOMINAL AORTA IN ITS ENTIRE EXTENT, THE RESULT OF MITRAL STENOSIS AND CONSECUTIVE CARDIAC THROMBOSIS.

BY H. W. SYERS, M.A., M.D. CANTAB.,
PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL.

THE patient, a married woman, aged 50 years, was admitted on Feb. 3rd, 1906. The history was as follows: On Jan. 20th, being in her usual good health, she first noticed a pain in the right leg; it was not severe and apparently soon passed off. On the morning of Jan. 27th on waking she complained of pain in the toes of both feet; she did not lay up but still felt pain in the toes and feet; in a few days a tingling sensation was experienced affecting the feet and extending up both legs. This latter symptom persisted and gradually became more marked. On admission her only complaint was that of pain in the legs. There was a history of scarlet fever three years previously and of "rheumatism" two years ago. Otherwise the health had always been good. The patient was very well nourished;



The illustration shows the general appearance of the gangrenous lesion.

the complexion was very slightly dusky. Both legs and feet could be freely moved; both were cold and in several localities the skin of the lower extremities was the seat of purplish red patches. There was more or less definite loss of ordinary sensation as high as the knees, but the sensation of heat and cold was retained. The sense of pain was greatly dulled over the left foot and leg, less so on the right side. The skin over the gluteal region was partially anæsthetic and of a purple tint. No pulsation could be felt in either femoral artery and none could be made out in the abdominal aorta, though this was of but little significance on account of the thick layer of fat deposited in the abdominal walls. The heart sounds were entirely free from murmur of any kind and no thrill could be detected on palpation. The apex of the heart could not be clearly defined and the superficial cardiac dulness was very ill-marked. The blood pressure, taken with the Riva-Rocci sphygmomanometer on admission, was 115 millimetres. The urine was of specific gravity 1022; it contained a trace of albumin but no sugar. The temperature on admission was 98° F.

The pain in both legs gradually became more severe and on Feb. 9th the patient could not sleep on account of it, hypodermic injections of morphine being required. The skin over the feet and the legs was now distinctly darker and a few days later the feet had passed into a mummified condition, being also quite black and insensitive. The gangrenous process was now extending somewhat rapidly but more so in the left leg where the skin was more or less discoloured up to the knee. Bullæ had formed in several localities over the gangrenous portions. On Feb. 14th the pulse was noticed to be slightly intermittent. The necrotic process became gradually more marked and on Feb. 26th the feet and a portion of the legs were completely black and powerless; there was complete anæsthesia over the feet and lower third of the legs. The pulse became once more regular and fairly strong; neither murmur nor thrill could be made out on examination of the heart. On account of pain and general restlessness morphine injections were necessary two or three times a day. The temperature continued fairly normal but rose occasionally to 101° at night.

On March 14th there was a purple area about two and a half inches across over the lower third of the right thigh and sensation was markedly impaired over this thigh. Areas of ulceration had now appeared over the left thigh and in the sacral region. Above the left knee and on the inner surface of the left thigh a purplish area was extending upwards and the same thigh was almost in its entire extent red and brawny. The skin over the feet and legs up to the knee on the left side and to the middle third of the right leg, was completely black, the whole being gangrenous. Pain was now much less marked, morphine being seldom required. The pulse now became intermittent and a systolic murmur at the apex was audible. On March 22nd the patient was wandering mentally and the temperature had been somewhat raised (highest 101°) during the few preceding days. She now became very noisy and shortly wildly delirious. The condition of the lower extremities remained unaltered. The pulse became very weak, rapid, and intermittent and death ensued from exhaustion on March 27th.

Necropsy.—At the post-mortem examination it was found that the left auricle was considerably dilated. The left ventricle was somewhat dilated and contained post mortem clot; the left auricle contained semi-decolourised clot, easily removeable, and also a yellowish-grey polypoid mass of about the size of a walnut. This was firmly adherent to the auricular wall at the side of the opening into the appendix; the communication between the auricular cavity and the appendix was completely occluded by this body. The mitral orifice was stenosed, being of the button-hole variety. The cusps were firmly welded together, but there was scarcely any thickening and the edges of the stenosed orifice were not rigid. There was no evidence of recent inflammation. The whole extent of the abdominal aorta just below the origin of the cœliac axis to the point of bifurcation was completely occluded with firm clot which distended the vessel. Both common iliacs were occluded; also the left external and internal iliac and femoral arteries. On the right side the obstruction ended with the termination of the common iliac. The cœliac axis was quite free from clot; all the other branches of the abdominal aorta were blocked at their origin but the lumen was free from this point. The clot filling the abdominal aorta was very firm and was decolourised. Evidence of previous embolic plugging was present in both kidneys in the form of several depressed scars beneath the capsule, the loss of substance extending for about a quarter of an inch into the renal cortex. The lungs were œdematous; all the remaining organs were healthy.

It is well known that of all valvular lesions mitral stenosis is the most liable to be attended with symptoms of embolism. That such symptoms had occurred in the present instance is clear from the condition of the kidneys, which, as will be found on consulting the account of the post-mortem appearances, had been the seat of bygone embolic infarction. There can be no doubt that the heart lesion was directly responsible for the very unusual physical signs observed in this case. Instances of double and simultaneous gangrene of the lower extremities are very far from being of ordinary occurrence and when a case of this kind is met with in all probability the first cause of the condition to suggest itself would be diabetes mellitus. So it was in the present instance. But the urine contained no sugar and all symptoms of diabetes were absent. Then the possibility of extensive and severe atheromatous degeneration of arteries would be entertained; but here, again, there was not the least evidence of this cause of senile gangrene being effective. As far as could be ascertained all the arteries excepting those directly involved were in a healthy state.

The possibility of the lesion being of an embolic nature was not lost sight of and the heart was repeatedly examined. Yet no evidence of cardiac disease could be detected and although, late in the progress of the case, a systolic murmur became audible at the apex, yet there could be little doubt that this was the murmur of failing heart action and due to slight dilatation from this cause.

The entire absence of thrill, of presystolic or other murmur occurring during the diastole, and of reduplicated second sound is certainly remarkable and is a further proof, if such was wanting, that it is impossible in not a few instances to diagnose mitral stenosis, even when the lesion is present in a marked form.

It must surely be excessively rare for such a complication of mitral stenosis as plugging of the abdominal aorta and most of its branches to occur, but there can be no question that the valvular lesion was in the last degree responsible in this case. The presence of the cardiac "polypus" in the left auricle would appear to explain the *modus operandi*. Clearly, either a portion of this coagulum or a similar but much smaller mass must have become free in the blood stream, must have passed through the constricted mitral orifice, and thence must have gained the aorta. That the embolus was of some considerable size seems clear from its obvious extent in the vessel and it would appear to have formed a nucleus for subsequent extensive thrombosis, leading ultimately to the blocking of the abdominal aorta in its whole extent. This case certainly has an important bearing on the somewhat neglected subject of cardiac thrombosis and the relationship of the latter to mitral stenosis.

To Mr. T. W. N. Dunn and Mr. R. Brown, house physicians, I am indebted for the notes from which the history of the case has been abstracted and my best thanks are due to Mr. Alan Hair for his kindness in enabling me to reproduce the general aspect of the lesion from his photograph of the same.

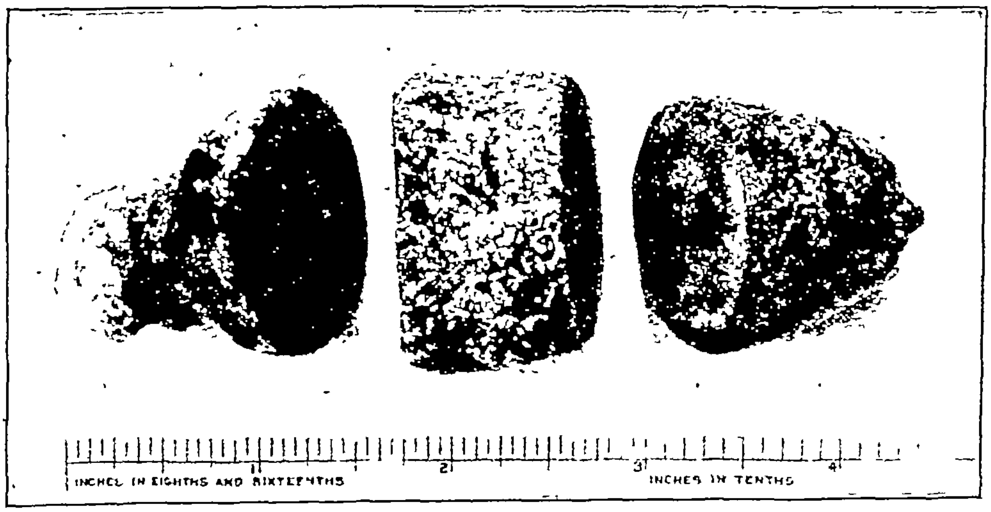
Wimpole-street, W.

A CASE OF GALL-STONES OF LARGE SIZE PASSED BY THE RECTUM.

BY W. E. CARNEGIE DICKSON, M.D., B.SC. EDIN.,
M.R.C.P. EDIN.,
SECOND ASSISTANT TO THE PROFESSOR OF PATHOLOGY IN THE
UNIVERSITY OF EDINBURGH; ASSISTANT PATHOLOGIST
TO THE EDINBURGH ROYAL INFIRMARY, ETC.

THE following case is one of considerable interest, not only on account of the large size of the gall-stones themselves, but also from the fact that they were passed by the patient per rectum, after, in all probability, ulcerating their way through the fundus of the gall-bladder into the transverse colon at or near the hepatic flexure.

The history of the case is briefly as follows. The patient, a female, aged 60 years, was under the care of my father, Dr. George Dickson, to whom I am indebted for the specimens. On July 30th, 1903, while in the country, she was suddenly seized with epigastric pain which became very severe towards morning. A medical man was called in next day and observed that she was slightly jaundiced. The pain subsided during the subsequent day, August 1st, and she was able to go out. During the following night, however, the pain again supervened, accompanied by nausea and vomiting. This condition remained for about a week and then gradually disappeared. The pain, however, returned about a month later, reappearing on Sept. 11th, 1903, and remained present more or less continuously for seven months, a specially severe attack occurring in February, 1904. After this date she felt comparatively well until November, 1905, when she had another short attack of abdominal pain and uneasiness, which lasted more or less till Jan. 14th, 1906, about which time she began to have great difficulty in obtaining passage at stool. On Jan. 19th my father was called to see the patient and on rectal examination found a large, firm, rounded mass, apparently composed of hardened fæces, impacted in the rectum just above the opening of the anal canal and obstructing the outlet. This mass was with some difficulty extracted and its nucleus, after being washed free from the clay-like fæces which surrounded it, proved to be a large gall-stone, 1$\frac{5}{16}$th inches in length, somewhat paraboloid in shape, with a single, large, flat, circular facet, 1$\frac{13}{32}$nd inches in diameter, representing the base of the cone. This stone, which is represented on the right side of the photographs, weighed when dried 14 5 grammes.



Reproduction of photograph (natural size) showing shapes and facets of the gall stones The stone on the right was that passed first. The stones when fitted together made a mass three and a half inches long, forming a complete cast of the interior of the gall bladder. The bulbous projection on the left side probably fitted into the dilated upper end of the cystic duct.

After the evacuation of this stone the patient remained well until April 6th, when she had a severe attack of pain all over the abdomen; and on the 14th a large, firm, tumour-like mass was felt in the left lumbar and iliac regions, its upper margin being on a level with the umbilicus. This mass was moveable and copious enemata were administered in the belief that, as the first gall-stone was faceted, this mass was in all probability due to the presence of one or more gall-stones surrounded by fæces and situated in the descending colon and sigmoid flexure. Mr. F. M. Caird, who was called in for consultation, confirmed this diagnosis and advised the continuance of the treatment by enemata, together with the administration of olive oil by the mouth, there appearing to be no immediate necessity for any operative interference, a course which was amply justified by the fact that during the night of May 10th my father on being called to see the patient, found the two remaining gall stones shown in the photograph impacted in the rectum. These were extracted and, probably owing to the method of treatment employed, were not on this occasion surrounded by the clay-like fæces described as encasing the first stone. These two stones were also faceted and, along with the stone previously passed, fitted together to form a complete cast of the interior of the gall-bladder (see illustration). The stone first passed, and already described, was probably situated at the fundus and was the first to ulcerate into the bowel. The middle stone formed a short cylinder, $\frac{15}{16}$ inch long and 1$\frac{9}{16}$ inches in diameter, and showed a flat facet on each side, one of which fitted the facet of the first stone the other fitting a corresponding surface on the base of the third. The last-mentioned stone somewhat resembled the first in shape, with the exception that it had a curved, bulbous *projection* at one end which evidently fitted into the dilated upper part of the cystic duct. The stones are dark brown in colour, being composed mainly of bile pigment and cholesterin, and on the surface there is a layer of white crystals of cholesterin, giving them somewhat the appearance of having been powdered over with crystals of coarse sugar.

The main interest of the case lies in the fact that gall-stones of such large size were evacuated from the gall-bladder by natural means, and that they had evidently ulcerated their way through the fundus of the gall-bladder into the large intestine after these two organs had become attached to each other by adhesions. They had then passed very slowly down the large intestine, and had become surrounded by a mass of clay-like fæces which led to partial obstruction of the bowels, relieved by the repeated use of large enemata. That they passed down by the cystic and common bile-ducts is very improbable, there having been no severe attack of jaundice, and moreover the stone which formed a cast of the fundus of the gall-bladder was the first to appear in the rectum, and preceded the others by about four months. Ulceration into, and passage by way of, the small intestine is also excluded by the clinical history, and stones of such large size, if they had travelled by the last-named route, would almost certainly have become impacted at the ileo-cæcal valve. A small ischio-rectal abscess formed a few days after the first stone was passed, probably from fissuring of the stretched mucous membrane of the anal canal and infection with organisms. This was opened—about one and a half ounces of pus being evacuated—and rapidly healed up; and the patient is now in good health.

Measurements and Weights of the Stones

—	Diameter.	Length.	Weight (after drying)
	Inches Mm	Inches Mm.	Ounces. Grammes.
First stone passed ..	1$\frac{13}{32}$ = 36	1$\frac{5}{16}$ = 33	0·51 = 14·5
Middle stone	1$\frac{9}{16}$ = 40	$\frac{15}{16}$ = 24	0 67 = 19·0
Last stone	1$\frac{7}{16}$ = 36	1$\frac{3}{8}$ = 35	0 52 = 15·0

Total length when fitted together, 3½ inches (89 millimetres) total weight after drying, 1·71 ounces (48 5 grammes).

Edinburgh.

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

BY DAWSON F. D. TURNER, M.D. EDIN., F.R.S. EDIN.,
LECTURER ON BIOLOGICAL PHYSICS, SURGEONS' HALL, EDINBURGH.

IN a communication made to the Royal Society of Edinburgh on Dec. 21st, 1891, I gave an account of the experiments I had made to ascertain and compare the electrical resistances of various kinds of urine both in states of health and of disease. The fluids were held in a U-shaped electrolysis tube containing two disc shaped platinum electrodes arranged so as just to rest upon the surfaces of the fluid, 21 cubic centimetres of which were used for each experiment. The measurements were made by Kohlrausch's method and at a temperature of 65° F.

As a result of the observations, which extended also to artificial urines, it was found that the specific resistance of a normal urine amounts to about 45 ohms and that the resistance is a measure of the salts, chlorides, phosphates, sulphates, &c., present in the urine; the greater the concentration the less the resistance and *vice versâ*. In disease the resistance was found to be increased chiefly in acute croupous pneumonia (due to the diminution in the chlorides), in diabetes mellitus, acute and chronic Bright's disease, and in pernicious anæmia As it is believed that the glomeruli are mainly responsible for the presence of salts in the urine, a high electrical resistance, other things being equal, would indicate an impairment of the function of the glomeruli.

Within the last ten years I have made many attempts to measure the electrical resistance of the blood; various methods (dilution with distilled water, measurement of a column of blood in a capillary tube, &c.), have been employed and subsequently rejected. The principal difficulty depends upon the fact that only very small quantities of blood can generally be obtained at one time. The best results were obtained by placing five cubic millimetres of freshly drawn blood between two cup-shaped electrodes three millimetres in diameter, coated with spongy platinum and fixed at 0·75 millimetres apart. The length of the cylinder of blood between the electrodes is of less importance than its diameter because the cross-sectional area varies with the square of its diameter, and the resistance of a conductor varies directly as its length and inversely as its cross-sectional area. By employing electrodes of fixed diameter and at the same distance apart and the same quantity of blood for each observation and by making the measurement at once before such changes as coagulation or evaporation could occur fairly consistent results were obtained. The average specific resistance of normal blood measured in this way is 93·5 ohms but it may fall to 85 or rise exceptionally to 130. The resistance depends again upon the salt concentration of the blood.

A striking change is to be observed in pernicious anæmia, the resistance in this disease being usually about one-half (50 ohms) that of normal blood. The deduction is that the blood in this disease contains an abnormal amount of salts due either to destructive metabolism or to renal inefficiency or to both. Light is thrown on this question by examining the resistance of the urine; this will be found to be abnormally high, hence we have the striking fact that while the urine contains too few salts the blood contains an abnormal amount. This, then, is a clear case of renal inefficiency. In view of this fact (impairment of the glomerular function of the kidney) the pathology and treatment of pernicious anæmia require reconsideration. These results obtained some years ago and the introduction of cryoscopy have led me to compare this method of determining the renal efficiency with that of cryoscopy and to originate a ratio which I will call "The Hæmo-renal Salt Index"—viz.,

$$\frac{\text{The electrical resistance of the blood.}}{\text{The electrical resistance of the urine.}}$$

In health this would be equal to two or three whole numbers, e.g.,

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{93\cdot5}{45} = 2\cdot08.$$

If this number increases it indicates that the blood contains fewer salts and the urine more and that the functional activity of the kidney is increasing; if, however, the hæmo-renal salt index diminishes it indicates that the functional activity of the kidney is diminishing. Thus in a bad case of pernicious anæmia the salt index is less than one, it is a fraction, but with an improvement of the patient it will at once increase and with his recovery it will return to normal. Here are some illustrations.

CASE 1.—A. B.; healthy.

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{119}{38\cdot25} = 3\cdot1 = \text{hæmo-renal salt index.}$$

CASE 2.—M.; advanced pernicious anæmia; patient under the care of Dr. G. A. Gibson; examined in July, 1906.

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{40\cdot8}{68} = 0\cdot6$$

CASE 3.—A. D.; pernicious anæmia with many relapses; a patient under the care of Dr. A. James; examined in February, 1902.

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{51}{115} = 0\cdot44 = \text{index.}$$

CASE 4.—A. B.; secondary anæmia; patient under the care of Dr. Gibson; examined July, 1906.

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{85}{56\cdot1} = 1\cdot5 = \text{index.}$$

CASE 5.—A. T.; chronic rheumatism; patient under the care of Dr. Gibson. Index 3·3.

CASE 6.—W.; chronic interstitial Bright's disease; patient under the care of Dr. Gibson. Index 2·1.

CASE 7.—H.; recovery from pernicious anæmia; red blood corpuscles, nearly 5,000,000; patient under the care of Dr. Gibson. Index 1·7.

This method is a more sensitive, a more rapid, and a more accurate one than cryoscopy but it does not measure exactly the same thing. Cryoscopy measures the total *molecular* concentration and is independent of the kind of molecule provided they are not dissociated (salts, acids, and bases are exceptions). Electrical resistance depends only upon the salts, acids, and bases, and of these NaCl is by far the most important; it is practically unaffected by the presence of albumin, sugar, and other non-electrolytes.

Urea has a small effect only. The combination of cryoscopy with the determination of the hæmo-renal salt index would give us more precise information as to renal capacity than the use of either method alone; the one method should not be regarded as a substitute for the other but rather as complementary to it, but of the two the electrical method is so much more convenient and rapid that it is likely to come into extended use in the future.

I desire to thank Dr James, Dr. Gibson, and Dr. Woodward for the help they have afforded me in the prosecution of this research.

Edinburgh.

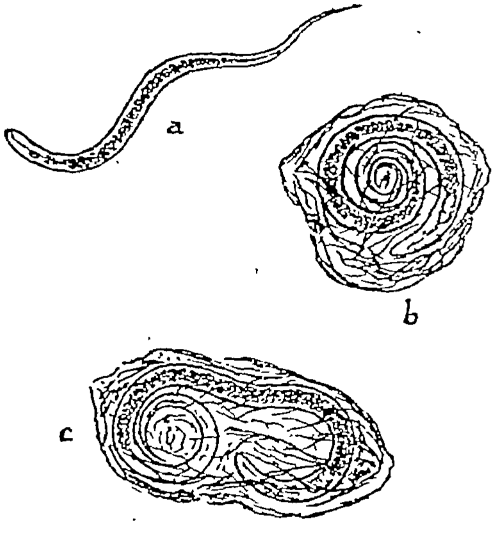
THE POSSIBLE IMPORTANCE OF EARTHWORMS AS A FACTOR IN THE SPREAD OF DISEASE.

BY CHARLES F. FRASER, M.D. BRUX., M.R.C.S. ENG., L.R.C.P. LOND.

IN the alimentary canal of lumbricus or allolobophora a vast number of parasitic organisms exist. Thus in the fore-part of the canal gregarinæ are exceedingly numerous, whilst posteriorly paramecium and other protozoa are seen. Throughout the whole length bacteria swarm, the greater number of the forms seen being bacilli. It is certain that the bacillus of tetanus must be included in the ranks of the latter. These bacilli are extruded in the worm-casts and so contaminate the grass which is subsequently eaten by the horse. It may be that the bacilli are rendered peculiarly virulent by their passage through the worm and we thus have a possible explanation of the frequency of infection amongst grazing horses.

In the posterior part of the gut a parasitic nematode is found which is of peculiar interest on account of its great similarity to trichina spiralis. The nematode exists in a free state and in an encysted form, the former being found nearer the clitellum, the latter in the immediate vicinity of the anus. Thus in a large specimen of allolobophora the last inch of its body will show encysted forms, whilst the intestine higher up exhibits the worm in a free state. It would seem, therefore, that as the worm descends the intestine it becomes encysted preparatory to being extruded in the worm-castings.

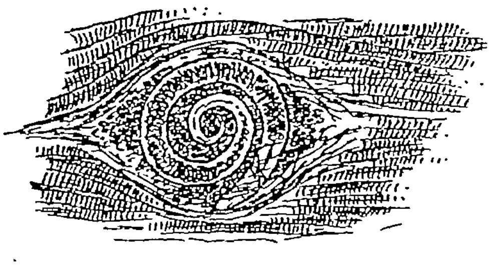
FIG. 1.



Parasitic nematode of worm. *a*, free form; *b* and *c*, encysted forms.

The minute worm is just visible to the eye; the cysts are of the same size as those found in the tissues of persons suffering from trichinosis. They have an irregular, soft, transparent wall, within which the worm may be seen lying, coiled up in a loose, or more often a tight, spiral. The worm never seems to exhibit any movements within its cyst wall. In the free state the worm measures about $\frac{1}{8}$th of an inch in length, is colourless, transparent, and shows an œsophagus, stomach, and intestine, the latter being surrounded by granule-like cells to within a short distance of the anus. The head is somewhat blunted as compared to the anal extremity which is drawn out into a very fine point. The cysts are most commonly found on the walls of the intestine after gently extruding or washing away the earthy contents. They are also present in the intestinal contents and in the worm-casts. It is possible that these may be identical with trichina. Infection of the pig may occur from contamination of the herbage with worm-casts or the pig may eat the lumbricales themselves. Certainly this seems more feasible than the mode of entry usually put forward—viz., that the pig is accidentally infected from eating a rat that has died from trichinosis.

FIG. 2.



Trichina spiralis, appended for the sake of comparison.

It will be of interest to see whether the pig can be similarly infected from these lumbrical parasites.

Cricklewood, N.W.

NOTES ON RHEUMATIC COMPLICATIONS.

BY A. D. PITHIE, L.R.C.P., L.R.C.S. EDIN.,
L.F.P.S. GLASG.,
HONORARY PHYSICIAN TO THE LISLE COURT CONVALESCENT HOME FOR CHILDREN.

THE following case is interesting as having complications of a rheumatic infection without the appearance of the usual symptoms of the disease itself.

The patient was a female, aged seven years. She was sent to Lisle Court Convalescent Home for Children from the Hospital for Sick Children, Great Ormond-street, on June 14th, 1906. On the 15th she was observed to have a clicking sound while speaking. On the 16th she was fidgety at meals, on the 17th unsteadiness in walking was noticed, and on the 18th choreic movements were pronounced, though slight. She was put to bed and kept there. The child remained in this condition until the 21st, when about midnight she became very restless and emotional, with dyspnœa and cyanosis. She was ordered to be isolated and given arsenic and digitalis three times a day, with five grains of trional at bedtime. The temperature was normal and the pulse was 160. She had five hours' sleep at intervals during the night. There was marked cyanosis at 3 A.M. On the 23rd the temperature was normal and the pulse was 158. Trional was given at bedtime and the patient had four and three-quarter hours' sleep at intervals. On the 24th she was still very restless, the pulse was 160, and in the afternoon the temperature ran up to 101° F. Choreic movements were very marked. An ice-bag was applied to the heart, five grains of *bromide of potassium* were given at 4 P.M. and 6 A.M., and trional at bedtime as before. On the 25th she had a much quieter night and the temperature came down to 98°. Up to this time there had been no indications of rheumatism but on this morning she had a perspiration with the characteristic odour of this disease. Seven and a half grains of salicylate of sodium were given every three hours as well as the trional at bedtime, and the ice-bag was continued to the heart. The evening temperature was 100·8°. On the next morning the temperature was 98·6° and the pulse was 140. Salicylate of sodium with an equal quantity of bicarbonate of sodium was given every two hours. The evening temperature was 100·4° and the pulse was 140. Choreic movements were less. Since giving the salicylate of sodium sleep had been better and the patient much quieter. On the 28th the temperature came down to normal and the pulse gradually decreased till on July 5th it was 104, at which it has continued. On the 10th the salicylate was reduced to thrice daily in the same quantity and on the 12th it was discontinued. Trional was discontinued on July 4th. The child is now convalescent.

The child had been sent to the Home for open-air treatment, having been suffering from tuberculous disease, first of the kidney and afterwards of the abdominal glands. When first seen she was found to have the cardiac apex on the level of the fifth rib and two inches to the left of the nipple line. The pulse was so rapid as to be hardly countable. The right auricle was enlarged and there was general hypertrophy of the heart muscle. The temperature was normal for several days till on the tenth day from the time the first symptom of chorea was noticed. Then it suddenly rose and with this rise appeared the sweat with the peculiar rheumatic odour. There were no pains, swelling about the joints, or red splotches anywhere about the child; nor was there anything except the rheumatic smell to indicate the presence of rheumatic infection. The cardiac enlargement was evidently of some standing and on referring to the hospital records there is a note of myocardial trouble but nothing noted as to rheumatism.

Considering the relationship between endocarditis and chorea and the dependence of these on rheumatism it strikes me that treatment of chorea and endocarditis might be carried out on the lines as if they were always due to rheumatic poison. The rapid subsidence of the symptoms and the amenability to treatment by salicylate of sodium and the ice-bag point out a method which might be more universally adopted. The plan of giving bicarbonate of sodium with the salicylate, as mentioned by Dr. F. Langmead, is a safe one even with much more enormous doses than were given in the present instance. In administering larger doses of the salicylate it appears that the danger of acetonuria is obviated by giving at the same time bicarbonate of sodium in an equal or a larger amount. As it is necessary to test for the acetone, and such means are not always at hand to the busy country practitioner, it might be inquired whether the rough-and-ready test for alkalinity would not be to a certain extent a safeguard from acetone poisoning in cases where very large doses of the salicylate are deemed advisable.

Lymington, Hants.

A CASE OF TABES DORSALIS IN WHICH WIDESPREAD CUTANEOUS SENSORY MANIFESTATIONS COMPLETELY DISAPPEARED.

BY FREDERICK W. PRICE, M.B. EDIN., M.R.C.P. LOND.,
MEDICAL REGISTRAR TO WESTMINSTER HOSPITAL.

THERE is a good deal of difference of opinion regarding the question whether the prognosis of the incoördination in tabes dorsalis is influenced by the presence or absence of optic atrophy. Thus, while many writers maintain that with the development of eye symptoms the ataxia often remains stationary, Dr. D. Ferrier in the recent Lumleian lectures expressed the opinion that all that could justifiably be said was that the ataxic and amaurotic forms of tabes are often more or less distinct though not exclusive of each other. Not so much attention has been given to the point as to whether the sensory disturbances are affected by the presence or absence of eye changes. In his lectures Dr. Ferrier pointed out that there is no constant relation between the degree of ataxia and the extent to which cutaneous sensibility is affected. The following case of tabes dorsalis is remarkable, inasmuch as marked sensory disturbances completely disappeared, apparently coincidently with the development of complete optic atrophy.

A man, 34 years of age, by occupation a warehouseman, who had formerly been a soldier, was admitted to the Westminster Hospital under the care of Dr. R. G. Hebb on August 1st, 1905, complaining of weakness and numbness of the legs. There was nothing of note in the family history. The following personal history was obtained from the patient. At the age of 24 years, while in Burma, he had dysentery and malaria; during the same year he contracted syphilis, which was treated for a period of three weeks; there were very few, if any, secondary manifestations. Between two and three years before admission the patient noticed that his sight was failing and this failure of vision gradually increased. About a year ago he found that his gait was becoming unsteady and that he swayed on closing his eyes during the act of washing his face. Soon after this he began to feel numb in the feet, and later successively in the back of the legs, thighs, lower part of the scrotum and fingers. For some months there had been dribbling away of urine on laughing or coughing, and during the last month there had been an aching pain in the lower part of the cervical region after much movement of the head. He had never suffered from lightning pains or from any crises.

On admission the patient was found to be a well-developed man, with a scar, the result of a bullet wound in 1900, in the lower part of the left calf. There was paræsthesia of the feet and tips of the fingers. There was almost complete loss of sensibility to touch, heat and cold, and pain in both legs up to the level of the knees; above that level there was partial anæsthesia up to, and including, the neck and posterior part of the head. Romberg's sign was very evident, the patient almost falling when the feet were put together, even with the eyes open; the gait was typical and very ataxic; there was slight incoördination of the upper extremities. The knee, triceps, and supinator jerks were all absent; the plantar reflex was abolished. There was some loss of control of the bladder sphincter but not of the rectal sphincter. There was slight diminution of visual acuity; the colour sense was normal; the external ocular movements were normal; the pupils were equal, moderately dilated, and reacted both to light and to accommodation. Nothing abnormal was found on examination of the heart, the lungs, or the urine.

Iodide of potassium was ordered internally and a drachm of blue ointment was rubbed into the abdominal wall each evening. Frenkel's exercises were regularly carried out. On August 21st the anæsthesia was found to have somewhat altered, the patient could slightly feel pain over the inner aspects of the knees, and easily recognised touch and pain over both groins; apart from this there was almost complete loss of sensibility as high as the neck and the right half of the face was also less sensitive than normal.

The patient left the hospital on August 25th, his condition having moderately improved. He remained about the same until Christmas, when a steady loss of the power of vision commenced, so that by the middle of April he was totally unable to read, as he said the letters were obscured by lines which crossed one another "like the meshes of a net." He also said that the unsteadiness of gait had steadily increased; the difficulty in regard to his vesical sphincter had, on the other hand, continuously improved, so that there was no longer any trouble with his micturition.

The patient was readmitted on April 30th, 1906. The sensory functions were now found to be absolutely normal; there were no paræsthesia and no impairment of sensibility to touch, heat and cold, or pain; the rate of conduction was normal and there were no pains in any part of the body. Romberg's sign was present; the ataxia of the lower limbs was so great that the patient could scarcely walk without support; he was able to perform fine movements with the upper limbs perfectly well. The plantar reflex and the knee and triceps jerks were all absent. The vesical and rectal sphincters acted normally. With both eyes open the patient was able to distinguish two fingers at a distance of four inches from the eyes; both pupils were of good size, the right being perhaps a little larger than the left; neither was absolutely circular; both reacted to light and accommodation; complete optic atrophy was present. A lumbar puncture was performed and examination of the cerebrospinal fluid showed an extreme leucocytosis, most being small monomorphs (lymphocytes); of large monomorphs a considerable number also; and the presence of a few polymorphs, no doubt due to admixture with blood. Osazon crystals of the thistle-down type were present; the fluid reduced Fehling's solution. The patient was put on the same treatment as before and was discharged on May 24th slightly improved.

It will be observed that the first symptom noticed by the patient was failure of sight. I regret that his discs were not examined when he came under observation on the first occasion, but it is probable that at that time his power of vision was not severely affected, so that optic atrophy, if present, was in all probability slight. Be that as it may, it is evident that in the space of eight months, coincidently with the development of practically complete optic atrophy, the sensory defects not only became arrested but actually disappeared, whilst along with the return of the sensory and bladder functions to the normal there was no improvement but rather a steady deterioration in the coördinating functions. Although Argyll-Robertson phenomenon was not present during the times the patient was under observation, there can be no doubt regarding the diagnosis as the other symptoms were so characteristic.

I am indebted to Dr. Hebb for being allowed to publish this case.

Wimpole-street, W.

A Mirror
OF
HOSPITAL PRACTICE
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

LEWISHAM INFIRMARY.

A CASE OF TETANUS WITH SUDDEN ONSET OF ACUTE SYMPTOMS.

(Under the care of Dr. J. HOBART NIXON.)

A WELL-NOURISHED male child, aged four years, was taken to the infirmary at 8.10 A.M. on July 3rd last suffering from "convulsions." The child was in the position known as opisthotonos. He was bathed in profuse perspiration and the jaws were tightly clenched. His temperature was 99° F. and the pulse at the radial artery could not be felt. Morphine was administered hypodermically and there were a few short intervals in the spasms and the child died at 9.35 A.M. the same day.

The history, obtained from the mother, was as follows. On the evening of June 27th the child whilst playing ran a splinter of wood into his leg. The father withdrew the splinter and bathed the leg with a solution of boric acid. Three days later, as the wound did not heal, medical advice was obtained though the child did not complain of any pain but played about apparently in his usual health. Fomentations were applied and the wound healed. During the afternoon of July 2nd the child complained of "feeling funny in his stomach" but the uneasiness was not sufficient to interfere with his games. The discomfort was more marked in the evening but the child ate several biscuits and sweets before going to bed about 8 P.M. The mother visited the child about midnight when he complained of acute pain in the stomach and in the back of his neck. Soon afterwards convulsions set in and the medical attendant was sent for about 5 A.M. on July 3rd and ordered his removal to the infirmary.

Necropsy.—The post-mortem examination revealed the following conditions. On the outer side of the right leg, situated half-way between the ankle and the knee, was a dry, healed wound, roughly circular in shape and somewhat less than a quarter of an inch in diameter. The presence of any foreign body under the wound could not be felt. But on dissection a narrow track, one and a quarter inches in length, was revealed, at the bottom of which was found a splinter of rough, dirty wood three-quarters of an inch in length. Surrounding the splinter was a small cavity containing pus in which microscopic examination revealed the presence of typical bacilli tetani. Running through the wall of the cavity was a swollen nerve. The stomach was empty and showed no signs of irritation. The meninges and lungs were congested. All other organs were normal.

Remarks by Dr. NIXON.—The points of particular interest about the case are: 1. The superficial healing of the wound, rendering it impossible to tell by palpation that a foreign body was inclosed, though probing would have assisted the diagnosis had the child been taken to a medical man in the first instance. 2. The onset of symptoms was so sudden as to suggest poisoning; the child was playing as usual the previous evening, ate his supper, but died at 9 35 A.M. on the next morning. 3. The position of the nerve to the nidus of infection offered a ready means of transit of the toxin from the lesion of the splinter to the central nervous system.

MELBOURNE HOSPITAL.

A CASE OF A BULLET LODGED IN THE RIGHT HEART; LIFE CONTINUED FOR SIX MONTHS.

(Under the care of Dr. C. S. RYAN and Dr. H. C. MAUDSLEY.)

FOR the notes of the case we are indebted to Dr. Arthur Morris, late resident medical officer to the hospital.

A man, aged 70 years, and well preserved for his years' was admitted to a surgical ward of the Melbourne Hospital on Jan. 19th, 1904. He had been suffering from tabes dorsalis for the previous 16 years and had, apparently on account of the pains, attempted suicide on Jan. 18th by shooting himself in the lower part of the thorax with a revolver. Examination showed a bullet wound, with edges inverted and the skin blackened around it, situated at the level of the junction of the xiphisternum and the body of the sternum. There was very little hæmorrhage from the wound. The abdomen was lax, was not tender in any part, and there had been no vomiting. The patient complained of some pain between the shoulders posteriorly and also beneath the left nipple, while there was tenderness about the site of the wound. The direction taken by the bullet was apparently downwards, backwards, and to the left. On examination with the x rays, using the screen, the bullet was seen to be situated about two inches to the left of the sternum and opposite the sixth left costal cartilage. The patient had no symptoms which called for operative interference and was discharged on Feb. 2nd none the worse, apparently, for his experience.

Nothing further was seen of the patient until Sept. 17th, 1904, when he was admitted to a medical ward in the hospital in an unconscious condition. The history then obtainable was that he had suddenly become unconscious that morning and that the seizure had not been accompanied by any form of convulsion. On examination no reflexes, except the conjunctival, were obtainable. The heart's apex beat was in the sixth interspace, one inch outside the nipple line. The heart sounds were very weak but clear. No bruit could be detected. The second sound at the base was accentuated. The pulse was very small and rapid, with a tendency to be irregular. At this time the previous history was not known and the case was regarded as one of sudden senile heart failure. Appropriate treatment was adopted, but although the patient regained consciousness he died suddenly with marked dyspnœa and cyanosis about four hours after his admission to the hospital.

Necropsy.—There was an old skin scar situated over the lower end of the sternum on a level with the fifth left costal cartilage and corresponding to this on the inner surface of the sternum was a patch of old organised hæmorrhage. The visceral and parietal layers of the pericardium were adherent to each other nearly all over. These adhesions were not very tough, one near the apex being firmer than the rest, while those over the right heart were dark and pigmented. A darkly pigmented cicatrix was present in the anterior wall of the right auricle close to the auriculo-ventricular groove and corresponding to this on the inner surface of the auricle was a small pigmented patch. The bullet must then have pierced the right anterior cusp of the tricuspid valve, leaving a small slit-like opening. On opening the right ventricle the bullet was found lodged and partly buried in the columnæ carneæ of the apex. Part of the bullet projected into the right ventricle and was covered by a thin filmy membrane. The whole of the heart muscle was flabby and the left ventricle was dilated and hypertrophied—a kidney heart in not a very advanced stage of disease. The other organs only showed signs of age, most marked in the kidneys which were tough, pliant, and had confused cortices. The brain was soft and œdematous but no gross lesion was present.

Remarks by Dr. MORRIS.—The above case appears to be of sufficient interest to warrant recording. It is much to be regretted that fuller notes of the condition ante mortem cannot be given. The patient had apparently died from a failure of the right heart, due, it may be, to degenerative muscle changes taking place about the site of the bullet. No microscopic sections were made as the specimen was desired undisturbed.

My thanks are due to those members of the honorary medical staff, under whose care the patient was, for permission to publish these notes.

Medical Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Ruptured Gastric Ulcer in a Boy.—Operation for Perforating Gastric and Duodenal Ulcer.—Exhibition of Specimens.

A MEETING of this society was held on July 4th, Dr. J. O. AFFLECK, the President, being in the chair.

Dr. G. KEPPIE PATERSON read notes on a case of Ruptured Gastric Ulcer in a boy, aged 12 years. The patient had suffered from pain after eating, indefinite as to position and time after food; sometimes there was no pain after a meal. There was no vomiting or flatulence and the tongue was very slightly furred. The pain continued for 12 days, being only partly relieved by treatment, when after a light dinner in the evening he suddenly felt very severe pain in the abdomen. He was seen an hour afterwards when he was collapsed, with slow pulse, rigid abdomen, normal temperature, and complaining of pain in the abdomen and also in the left shoulder, especially about the left clavicle. After the application of a fomentation and gentle friction all signs of shock disappeared in half an hour; there was no loss of liver dulness. On the next morning he had signs of peritonitis with loss of liver dulness in front. He was operated on by Dr. F. M. Caird 18 hours after the rupture. A ruptured ulcer of the size of a small split pea was found on the anterior wall about two inches from the middle of the lesser curvature. The patient afterwards passed through an attack of double pneumonia so severe that at one time all hope of recovery was abandoned, but the very free *inhalation of oxygen* long continued, with hypodermic injections of strychnine, seemed to be the main element in his recovery. He quite recovered after a very slow convalescence. The cause of the ulcer was obscure. He had never suffered from any gastric trouble and had not taken anything likely to cause injury to the mucous membrane, and there was only slight caries of one tooth as a possible source of oral sepsis. Dr. Paterson included in his paper an abstract of 14 cases of ruptured gastric ulcer in children whose ages ranged from 45 hours and two months up to 13 years. These were all discovered post mortem. Only one other had been discovered on operation, that of Cheyne and Wilbe,[1] in a boy, aged 13 years, who recovered.

Dr. CAIRD then gave a communication on 25 Consecutive Cases of Operation for Perforating Gastric and Duodenal Ulcer. He said that the diagnosis of perforation was generally sufficiently obvious and a history of indigestion could usually be obtained. The classic evidences of gastric ulcer, hæmatemesis and melæna, were generally lacking. The immediate symptom of perforation usually took the form of an agonising pain referred to the umbilical region, causing the patient to "double up"; vomiting generally followed; a misleading period of quiescence often succeeded, the abdominal wall became fixed, and marked tenderness was elicited in the epigastric and suprapubic regions. The anterior liver dulness soon underwent diminution and might even be entirely absent. The leucocyte count varied from 7000 to 25,000. Diagnosis was sometimes doubtful, as it had to be made from appendicitis, acute pancreatitis, rupture of intestinal ulcers, and neoplasms. Operation should be carried out at once and the apparently moribund patient might be roused by intravenous saline transfusion and the use of strychnine. Free incision in the middle line gave most ready access. A rush of escaping gas and fluid verified diagnosis and relieved the embarrassed respiration. A broad retractor introduced at the upper end raised the abdominal wall and allowed of inspection of the stomach. It might be difficult to find the perforation, either from its small size or from its being plugged with lymph or by its inaccessibility. If the lesser sac were distended with fluid then the ulcer must have been on the posterior wall of the stomach. On identification of the perforation the ulcer should be plugged with iodoform gauze and a fresh search made for other ruptures. An incision should invariably be made in the middle line above the symphysis pubis and two glass drainage-tubes placed in the pouch of Douglas. Through one of these the pelvis should be irrigated with warm saline solution, while the ulcer received attention. There was no necessity to excise the ulcer which should be closed with fine silk sutures. The margins might be brought together; then at some little distance from the margins a series of Lembert's sutures must be introduced and a trace of iodoform rubbed in to favour plastic repair. If much perigastritis was present a large infolding of gastric wall might be necessary and lest this might occlude the gastric outlet it was better to perform gastro-jejunostomy. The whole upper part of the abdominal cavity should be thoroughly irrigated. A Keith's tube ought to be left in the pouch of Douglas and usually the site of perforation was drained by means of a Mikulicz tampon and tube. The wound in the abdominal wall was closed and the head of the bed should be raised six inches to favour gravitation of discharge from the highly absorptive upper part of the abdomen. Perforation usually took place on the anterior surface of the stomach and mostly towards the lesser curvature and pylorus. The escape of acid contents from the stomach stimulated the entire peritoneum to secrete an alkaline liquid so as to neutralise the gastric secretion. Recovery was usually uneventful and it was seldom that the stomach contained any very virulent micro organisms. Cultures were made in 11 cases: in seven micro organisms were present; the colon bacillus was frequently present; and in four the results were negative. In considering prognosis, the size and position of the perforation, the date and nature of the last meal, and the amount of escaped material had to be remembered. It was true generally that the *longer* the period which had elapsed since perforation the graver was the outlook. The *age of the patient* and the rate and condition of the pulse afforded valuable information as regarded prognosis. A pulse of 120 was to be feared and if 130 it was to be dreaded. The after-course was full of anxiety. Thirst might be allayed by rectal saline infusion administered every four hours. Morphine might be necessary. If the pulse failed in strength or fulness while the rate increased, intravenous saline transfusion was most beneficial. Vomiting if severe or accompanied by hæmatemesis was best combated by gastric lavage. Pulmonary complications ensued in some cases—e.g., pleurisy and empyema.

Mr. ALEXANDER MILES communicated Observations on Perforated Gastric and Duodenal Ulcer, based on a personal experience of 46 cases operated upon The conclusions to be drawn from a study of these cases might be narrated thus: 1. The liability to perforation appeared to be equally prevalent in both sexes, though females suffered more frequently from gastric ulcer than did males; 20 of the above patients were males and 26 were females. 2 Speaking generally, perforation occurred at an earlier age in females than in males and as a rule the younger the patient the better the prognosis was likely to be. 3. Although perforation occasionally occurred in patients who had not previously complained of any digestive disorder there was in the great majority of cases a history of severe antecedent indigestion and in a considerable number ulceration of the stomach or duodenum had been diagnosed. Hæmatemesis was, however, a rare antecedent symptom. 4. *In a considerable proportion* of the above cases premonitory symptoms of perforation had been present. 5. The actual rupture of the ulcer could not be accounted for by any constant factor. 6. The gastric perforation was situated on the anterior wall in 33 cases and on the posterior wall in three cases only; of these four were at the cardiac end, 14 in the body, and 18 towards the pyloric end. Almost all were situated towards the lesser curvature. The duodenal perforations all occurred in the first part and on the anterior wall. 7. Only in one case was there more than a single perforation. 8. Each perforation varied in size from that of a pin's head to that of a threepenny-piece. It partook of the character of a longitudinal tear in two cases. The size of the perforation bore no relation to the acuteness of onset or severity of symptoms. 9. The suddenness of onset, the overpowering nature of the pain, the marked rigidity of the abdomen, and the severity of the shock all formed the most characteristic clinical symptoms. 10. Emesis was not a common symptom at the commencement and when it occurred it did not increase the gravity of the prognosis. 11. Percussion of the abdomen gave inconstant and untrustworthy information. The disappearance of liver dulness was of no value in diagnosis nor did its persistence negative a diagnosis of perforation. 12. The site of maximum pain and tenderness was a trustworthy guide to the site of perforation and therefore to the line of incision. 13. The apparent improvement which often followed the initial shock was very deceptive and often led to dangerous or even fatal delay in operation. 14. Opium was a dangerous drug to give for the relief of early symptoms. Of 22 cases in which opium was not given 17 recovered and only five died. In 12 cases where opium was given 10 died and only two recovered. 15. Food particles were seldom recognised in the fluid which had escaped into the peritoneal cavity. The size of the perforation or the amount or quality of fluid which escaped from the perforation bore no relationship to the severity of the peritonitis. 16. At the earliest moment the abdomen should be opened by a vertical incision, placed over the site of maximum tenderness. 17 It was seldom advisable to open the stomach to find the perforation. 18. A graft from the omentum should be fixed over the line of sutures used to close the perforation. If so leakage was extremely rare. 19. It was rarely necessary to excise the ulcer and this was not to be recommended. 20. Gastro-enterostomy was an operation seldom to be justified as a precautionary measure against pyloric stenosis or as a means to favour the healing of the ulcer. 21. Pyloroplasty was a simple and efficient alternative in some cases to gastro-enterostomy. 22 The abdomen should usually be washed out and a special opening made above the pubes for drainage. 23. Injections of saline solution were more beneficial. Fluids might be given by the mouth after the lapse of 24 hours. 24. Complications met with had been such as the following: temporary gastric fistula, pneumonia, bronchitis, acute non suppurative parotitis, crural phlebitis, pelvic abscess, and subphrenic abscess. The chief factor in prognosis was the early period when operation had been undertaken. Every hour of delay diminished the patient's chance of recovery. The following was a summary of the results: gastric ulcer, 36 cases, with 18 recoveries and 18 deaths; duodenal ulcer, 10 cases, with 5 recoveries and 5 deaths; total, 46 cases, with 23 recoveries and 23 deaths.

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[1] THE LANCET, June 11th, 1904, p. 1615.

—	Total.	Recovery.	Fatal.	Mortality.
				Per cent.
Operated on within 12 hours after perforation	19	14	5	26·3
Operated on between 12 and 24 hours after perforation	9	5	4	44·4
Operated on between 24 and 36 hours after perforation		3	3	50 0
Operated on later than 36 hours after perforation ...	12	1	11	91·7
Total	46	23	23	50·0

Mr. C W. CATHCART, Mr. J. M. COTTERILL, Mr. H. J. STILES, Mr. R. SCOTT SKIRVING, Dr. JAMES RITCHIE Dr. ALEXANDER JAMES, Mr. R. A. LUNDIE, and the PRESIDENT took part in the discussion which followed.

Dr. CAIRD showed: (1) A Large Vesical Calculus and Prostate removed by operation; and (2) preparations illustrating Perforated Gastric Ulcer.

Dr. ALEXANDER BRUCE exhibited: (1) Two Brains showing large Tumours involving the pituitary body, without acromegaly; (2) one brain from a case of Chronic Chorea; (3) one brain with Thickened Vertebral Arteries involving both spinal accessories; (4) a case of Mitral Stenosis with large spherical vegetation almost occluding the mitral orifice; (5) a Heart with Ulcerative Endocarditis, showing large vegetation on the ventricular side of the mitral valve (aortic cusp); (6) microscopic sections showing Bacilli from Cerebro spinal Fluid and Blood during life and from the vegetation; and (7) photographs of Partial Ophthalmoplegia Externa.

Dr. H. M. CHURCH: Demonstration of Gärtner's Tonometer.

EDINBURGH OBSTETRICAL SOCIETY AND THE GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—The special annual conjoint meeting of these societies took place on July 11th in Edinburgh, Dr. J. W. Ballantyne, the President of the former society, being in the chair.—Emeritus Professor Sir Alexander Russell Simpson (Edinburgh), Professor A. M. Makejev (Moscow), and Professor L. M. Bossi (Genoa) were elected Honorary Fellows of the Edinburgh Society.—Professor William Stephenson (Aberdeen) opened a discussion on Irregular Manifestations of Puerperal Sepsis. The bacteriologist had now, he said, thrown much light on sepsis and given the facts their due proportion and perspective, as well as advancing knowledge both as to prevention and treatment, but the relation of micro-organisms to the manifestations of morbidity was far from being specifically determined. There were many varieties of organisms, each, no doubt, had a special action, but they could not yet clinically differentiate one from another; the manifestations were similar in all and mixed infection was common. The knowledge of the site and character of the local affection was of great prognostic value. The uniform standard of morbidity, as suggested by the committee of the British Medical Association, was disappointing, as eight days were too short for irregular manifestations of sepsis to show themselves, and to record "all cases in which the temperature reaches 100° F. on any two of the bi-daily readings" would be to include some patients who did not suffer from sepsis; the condition of the breasts alone would occasionally supply such cases. In forming an opinion of a puerperal illness the whole clinical bearings must be taken into account. Any degree of temperature determined upon could not be by itself a standard of morbidity, it was merely a standard of febrility. The temperature of 98·4° was the mean of certain variations; any variations below or which only touched this line were what he (Professor Stephenson) called on the low level and above normal were on the high level. A temperature touching 100° and barely, if ever, touching normal he would consider if continued an indication in most cases of sepsis. But the pulse must be taken into account as well as the temperature and the ratio of pulse and temperature was an important prognostic aid. The condition of a patient was indicated on a clinical chart more by the horizontal character than by the vertical range of the temperature. A high temperature was not dangerous unless continued or accompanied by an undue quickening of the pulse in proportion to the temperature.—Professor Murdoch Cameron (Glasgow) showed the chart of a case where the temperature rose on the fifth day after confinement to 104·8° and ranged high; he saw the case in consultation and injected antisteptococcic serum with marked results, the temperature falling to normal very rapidly. This was repeated on different occasions till it became normal. There was a distinct history of perimetritis. Phlegmasia dolens occurred in both legs, also phlebitis of other veins extending to the arms. The patient was in a dangerous condition but one good point was that she had all through a good digestion. She was now doing well. He distinguished three classes of cases. 1. The sapræmic with foul-smelling lochia, where when the portion of placenta was removed the patient was usually immediately cured. 2. Where the cases were due to absorption of sepsis from the perineum; these usually did well in about three weeks, every day, the condition gradually improving. He considered it of importance to get the kidneys to act freely. 3. Where nothing could be found on examination, the patient had an earthy colour, tremor of voice, furred tongue occasional vomiting alternating with attacks of diarrhœa, with suppression of lochia. These cases were to be dreaded as the signs indicated general sepsis and the patients generally died in the second week.—Dr. A. H. Freeland Barbour (Edinburgh) referred to the possibility of making too much of septicæmia or rather in confusing septicæmia with toxæmia. Many febrile conditions were toxæmic due to other causes than septicæmia. Puerperal rashes were very disquieting as suspicious of a septic condition. He instanced a recent case where a scarlatiniform rash appeared the day after labour with no congestion of the fauces; the temperature was about 99·2° and the pulse was 88. It was found that the patient was liable to a similar rash after cycling or a chill. It was a question whether the muscular activity of labour, which produced a large amount of waste products, might not be the source of a toxæmia. Eclampsia was associated with a raised temperature and yet it was not septic. He instanced another case where there was a rash like measles and noted that in these cases the rash did not come on immediately after the production of the cause but that the toxæmia took time to develop.—Dr. Samuel Sloan (Glasgow) had seen in grave cases the temperature curve with the vertical line frequently coming down to normal. He considered a horizontal line of temperature a little above normal, even just above 99°, if continued as very suspicious of sepsis. He did not put value upon the temperature taken in the axilla, the mouth or rectal temperature being more accurate. He considered the state of the breasts of importance; if the breasts were acting well he had little anxiety about a case even if there were a fairly high temperature and quick pulse.—Dr. S. MacVie (Chirnside) said that in the country it was impossible to obtain regular records of temperature. Some cases with high temperature were not due to sepsis. He had seen a temperature of 103° brought down to normal in 12 hours with a good purge. He believed that the change of diet usually prescribed after labour might make patients more liable to sepsis. He now changed their diet less both before and after labour, allowing them to take more of their ordinary food.—Dr. Charles C. Easterbrook (Ayr District Asylum) said that puerperal mania or insanity was one of the most distressing complications of labour. It was stated that it was less frequent but he did not know of any statistics to prove this. There were two distinct groups: First, that of septic puerperal mania, mostly occurring within a week of labour, with high temperature and pulse and very marked delirium. This required the usual lines of treatment, curetting of the uterus if necessary, &c. He had not found serum injections successful as a rule. These cases were distinctly in the minority in asylums. Secondly, there were those which occurred later in the puerperium where the temperature and pulse showed no distinct evidence of sepsis or where the temperature might be normal. These were just like ordinary cases of insanity and had been produced by exhaustion of the nervous system by the labour, which might be called a natural physiological crisis. There might be a toxæmia due to the absorption of the material, probably an albumose, produced by the involution of the uterus. Toxic rashes were frequently seen in the chronic insane and were mostly due to constipation. In febrile conditions the general level of the temperature was very important; in the chronic insane the temperature had to be considered in relation to their normal, which was usually 97·4°.—Dr. Claude B. Ker (Edinburgh Fever Hospital) stated that severe forms of sepsis from whatever cause, especially if going to be fatal, often had rashes and usually scarlatiniform. Scarlet fever was always true to its signs and true scarlet fever does not occur in sepsis. Many conditions would cause rashes. Constipation was a very great factor but strangely these did not occur during its persistence but after an enema or salts for its relief. He had noticed this in the typhoid cases where routine irrigations of the bowel are carried out and with all sorts of curious rashes as a result. He considered it due to the walls of the colon being cleared and the contents being well diluted and absorption thus promoted. A surgical operation might be the cause of a scarlet rash and a very small wound of the perineum might be a source. The general level was the main condition in estimating the value of a temperature. He did not feel secure from a relapse in a case until there was a level subnormal temperature. The cases of puerperal sepsis sent to the fever hospital usually had no symptoms but the temperature and were mostly fatal.—Professor Dickinson (New York) did not consider that they got much practical assistance from the bacteriologist—enough to throw out the rarer and more dubious forms of sepsis. But he was disappointed that there was so much sepsis in practice. As teachers they must impress upon their students the fact that obstetrics was not medicine but surgery and that it must be attended with everything surgically clean. There were fashions in the treatment of these cases; the injection of serum was thought at one time to work wonders and the results showed that the fatality was 40 per cent., but the fatality of those treated without serum was also about 40 per cent. Then the leucocyte count had also given out in its value. The polynuclear cells if above 80 might yet give valuable indications of the state of sepsis. They had reduced the death-rate in New York by organising an outdoor midwifery department attended by students who must keep accurate records of their cases. The great points in prevention were clean hands and a clean vulva. He instanced a case where there was a persistent moderate rise of temperature and where every ten days there was a very severe uterine hæmorrhage, almost causing death; after the third hæmorrhage the uterus was removed and was found to contain a small infecting ulcer close to one of the uterine arteries. He believed that a great many of these septic cases were due to phlebitis. At one time it was common with them to open the cul-de-sac in all septic cases and in from 30 to 40 per cent. serum or pus was found and then they put in a drain. Now that treatment had fallen into disuse and instead they incised the broad ligaments and often found and cleared out small phlebitic clots.—Dr. E. H. L. Oliphant (President of the Glasgow Society) thought that many cases of high temperature arose from toxæmia and not from sepsis. In the Glasgow Maternity Hospital he had found the temperature rise to a very high degree due to emotional causes; in these cases it rose suddenly, did not maintain a high level, and fell as suddenly. They had experienced a slight scarlet fever epidemic in the Maternity Hospital, but the rash and signs were quite typical in these patients. He instanced a patient who had a rigor on the fourth day accompanied with pain below the ribs on the right side. He took a swab of the contents of the uterus and found a pure culture of pneumococci. Two days later the patient showed signs of pneumonia.—Dr. J. C. G. MacNab (Dysart) said that germs flourished in patients of lowered vitality and that the general condition of the constitution was of great importance. The determining cause of rashes was difficult to find: he had two operations—one a herniotomy where no antiseptic lotion was used, only sterilised water; and another, a case of operation for septic mastoiditis, and yet both had similar scarlatinal rashes.—Professor R. Jardine (Glasgow) had seen a great many cases of puerperal rashes and also rashes after operations. Sometimes it was very difficult to distinguish them from true fever when they were accompanied with rise of temperature. He considered the aspect of the throat the main point in the differential diagnosis. As causes of rise of temperature other than sepsis, he mentioned excitement, as he had often seen it occurring in patients on the night before leaving the Maternity Hospital, due to their finding out some disturbing element at home. He had met a number of cases of rise of temperature due to the condition of the bowels. At one time he watched carefully day by day the progress of the involution of the uterus. He found some cases where there was very rapid decrease of the uterus, even in 24 hours falling below the pelvis, and in all these cases there was a rise of temperature, even up to 105° F., due to the absorption from this source. He had seen irregular manifestations due in several cases to abscesses, such as of the kidney and between the diaphragm and stomach, from a ruptured ulcer.—Dr. J. W. Ballantyne alluded to the conference in London on puerperal morbidity. They had suggested a uniform system of nomenclature, and for morbidity agreed to exclude the first day and any manifestation beginning after the eighth day, and provisionally that three bi-daily readings above 100° F. with a pulse above 100 indicated puerperal morbidity. At the Edinburgh Royal Maternity and Simpson Memorial Hospital out of 100 cases four fulfilled these conditions and these all recovered but others with rise of temperature died. He instanced a case of puerperal insanity in which the patient had to be removed to the asylum and died six weeks after labour, when post mortem a small abscess of the uterus was found.—Professor Stephenson replied.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on July 12th, Mr. F. B. Jessett, the President, being in the chair.—Dr. S. Jervois Aarons showed a Modified Hollow Ring Pessary filled with a mixture of gelatine and glycerine used in retroflexion with prolapsed ovaries.—Dr. R. C. B. Maunsell showed the following specimens: 1. Uterus and Adnexa removed by Wertheim's operation for malignant disease of the cervix. The glands were removed up to the kidneys and although enlarged yet no evidence of malignant disease was found. The ureters were easily found by tilting forward the ovaries when they readily showed through the peritoneum. The patient had urinary leakage on the tenth day which healed up in a few weeks after the bladder was washed out regularly. 2. Specimen of Carcinoma of the Right Ovary from a single patient, aged 25 years, who complained of a swelling in the abdomen for five months. On opening the abdomen some ascitic fluid was found and there were adhesions between the tumour and surrounding structures and also between the liver and anterior wall of the abdomen. The left ovary contained a small cyst which was not malignant. The patient had increased in weight and so far there was no evidence of metastasis or recurrence. 3. Myoma of the Cervix from a patient, aged 47 years, who had metrorrhagia for two years. The tumour bled profusely when touched, so that vaginal plugging was necessary. On drawing the tumour down it was found to be attached by a narrow pedicle which was snipped through with scissors. The patient recovered satisfactorily. 4. A Tubo-ovarian Abscess of one side and Salpingitis of the other tube removed from a multipara, aged 24 years, 15 months previously. The patient continued well for some months and then complained of severe pain and vaginal discharge. The uterus was removed and was found to be in a condition of suppuration. The patient made a good recovery. 5. Two large Tubo-ovarian Abscesses of gonorrhœal origin removed from a patient, aged 23 years, who had no children and had been married about a year. She complained of vaginal discharge and pelvic pain. Before operation she had two attacks of sudden severe pain and when seen was collapsed. On opening the abdomen pus welled up from the peritoneum and both tubal abscesses were found ruptured. Two incisions were made, one above and the other below the umbilicus; the abdominal cavity was washed out and drained with gauze. The patient made an uninterrupted recovery. 6. Two Tubo-ovarian Abscesses which ruptured before operation. The same line of treatment was adopted as in the former case but the patient died a few days afterwards.—Dr. H. Macnaughton-Jones showed a specimen of Hydatidiform Mole removed from a patient, aged 20 years, who had been married 18 months and had one stillborn child at term. She considered herself to be four months pregnant but had had a hæmorrhagic discharge for some time. The uterus was emptied and the specimen showed degenerated decidual tissue and chorionic villi with hyperplasia of Langhans's layer and syncytial buds. As a precautionary measure the uterus was curetted two months afterwards.—Dr. James Oliver read a paper entitled "A Study of Hydatidiform Mole with the Records of Three Typical Cases." After mentioning the theories of menstruation and expressing himself in favour of the view that there was no destruction of tissue, he briefly described the anatomical relationship between the allantois and chorion. The pathogenesis dated from the embryonic period between the third and sixth weeks. The interaction of allantois and chorion was at first harmonious. This interaction might be disturbed by the vigorous local growth associated with the formation of the placenta and might induce a perversion of the function of the allantois which might prejudicially influence the vessels and more or less obliterate them so that a mole might result. The functionally deranged placental and even non-placental villi might excite such reaction in the uterine wall that a more or less intimate union might be established between embryonic and maternal tissues so that the morbid process connected with this union might be injurious not only during gestation but also after abortion. Hydatidiform mole might be found at any time during reproductive life. The symptoms were then detailed. The association of amenorrhœa with the presence of a mole raised an interesting point, as in cases of intra-uterine death it could not be assumed that the suspension of menstruation could be solely due to the presence of a perished ovum in the uterus. The derangement was probably due to some disturbance in the metabolism of the uterus, for the abortive or aberrant product of conception attracted to itself and absorbed nutriment which was elaborated and practically secreted by the endometrium. The demand made thus upon the uterus was very different from that made by an ordinary neoplasm and induced such an alteration in its physico-chemical state generally that not only was menstruation held in abeyance but the irritability was so impaired that it might tolerate for an indefinite time the presence of a vesicular mole in its cavity. A uterus of a smaller size than ought to be considering the suspected duration of pregnancy was an important phenomenon. Three cases of molar pregnancy were then detailed and a discussion followed.

Reviews and Notices of Books.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India: Mediterranean Fever in India; Isolation of the Micrococcus Melitensis. By Captain George Lamb, I.M.S., and Assistant Surgeon M. Kesara Pai, M.B., C.M. Calcutta: Office of the Superintendent of Government Printing. 1906. No. 22, New Series. Price 10 annas, or 1*s.*

Some doubt has recently been cast on the belief that the fever with which the name "Malta" is associated has a wide geographical distribution. Whatever may be the truth of this doubt as regards the appearance of this disease in many parts of Italy, Greece, Turkey, Palestine, Africa, Southern China, Fiji, and localities in the Western Hemisphere, there can, we think, be no hesitation in asserting that it occurs in India. Of the truth of this the facts related in the above memoir afford ample proof. Thus Wright and Smith have tabulated ten cases invalided from India. Birt and Lamb, again, observed ten other examples at the Royal Victoria Hospital, Netley, in patients who had been invalided for enteric fever, malaria, and rheumatism. In 1900 one of the authors of the memoir, working in Bombay, studied five cases contracted in that city; four cases a short time afterwards were diagnosed in Simla both by the clear clinical symptoms and in two of the cases by the sera giving positive reaction with the micrococcus Melitensis. In 1901 Greig reported three cases in the Swat Valley. The authors hold that the serum agglutination method for the diagnosis of Mediterranean fever when properly and rigidly controlled is a most delicate bacteriological test and that it ought to take its place as an important addition to the ordinary clinical methods for the diagnosis of the disease. This opinion is evidently shared by the Commission that was appointed for the investigation of Mediterranean fever under the supervision of an advisory committee of the Royal Society. The work of the two authors of the report under review amply confirms this view.

The diagnosis of the fever was arrived at by reason of the sedimentation test and in a considerable number of the cases it was proved to be correct by the isolation from the spleen during life of a coccus bacteriologically indistinguishable from the micrococcus Melitensis. The technique employed by the authors and the precautions taken to control their observations are detailed and were briefly as follows. All agglutination experiments were made macroscopically in the capillary tube of Wright, by means of which also the serum dilutions were effected. Equal quantities of the various dilutions of the serum made with normal salt solution and of a sterile emulsion of the micrococcus were employed in all instances. The preparations were allowed to stand at laboratory temperature (about 18° C.) for 24 hours when the results were recorded. The emulsions were all made in exactly the same way—namely, a uniform growth on agar of from four to seven days was emulsified with normal sterile salt solution, about 2·5 cubic centimetres of the latter being used for each agar culture; the bacteria were then killed by heating at 60° C. for 15 minutes and finally 0·5 per cent. carbolic acid was added. *At the same time control experi*ments with the blood of healthy individuals and of patients suffering from other diseases were made almost daily—viz., with the bloods of 51 healthy individuals, all natives of India, and with all bloods sent to the Pasteur Institute of India for serum diagnosis of typhoid fever, about 150 cases. Thus the two series of controls amounted to over 200 in number and show that the bacteriological test is a delicate, easy, and absolutely trustworthy method of diagnosis.

The cases of Mediterranean fever coming under the notice of the authors fell into two groups—viz., (*a*) those in which the micrococcus Melitensis was isolated from the spleen during life and (*b*) those in which the diagnosis rested solely on the clinical history and the serum agglutination reaction. The bulk of the memoir is taken up with a recital of the cases which go to prove the fact that Malta fever does occur in India. It concludes with a highly interesting account of the disease as occurring in the 15th Sikhs at Ferozepore, who were evidently infected from a pre-existing source in the same station. The whole report demonstrates that Malta fever is not peculiar to Malta and it will well repay a perusal.

Infant Mortality: a Social Problem. By George Newman, M.D. Edin., D.P.H Cantab., F.R.S. Edin. London: Methuen and Co. 1906. Pp. 356. Price 7*s.* 6*d.*

If proof were required of the truth of the familiar saying that "the people perish for lack of knowledge" this would be supplied by a study of the present work on Infant Mortality, for an advance copy of which we are indebted to Dr. George Newman, the medical officer of health of the metropolitan borough of Finsbury. Very opportune is the appearance of this volume at the present juncture, when the public conscience has at length been aroused by recent revelations concerning the terrible sacrifice of infant life which continues year after year in this country. And its publication a few days before the opening by the London County Council of the National Conference on Infant Mortality was doubtless turned to good account by the President of the Local Government Board who, in his interesting inaugural address at the Caxton Hall,[1] spoke in highly appreciative terms of Dr. Newman's work. In the interval which has elapsed since receiving it we have taken the opportunity to peruse carefully the book and we may say at once that it bears evidence of careful and thorough composition by one who is eminently qualified for the task. As far as we know this is the only modern text book of any pretensions to scientific accuracy that is available to the

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[1] A notice of this conference appeared in The Lancet of June 16th, p. 1710.

English reader, and we predict for it a wide circulation, not by any means limited to students or practitioners of medicine.

The term "infant mortality" is used by the author, as, indeed, by most of his contemporaries, to express the ratio of deaths under one year of age to registered births. And so long as stillbirths continue unregistrable in England this method is at least as trustworthy as any other at present available.

Dr. Newman emphasises the Registrar-General's announcement that almost exactly one-quarter of the total deaths occurring every year are those of infants who have not attained the first anniversary of their birth. The national registers record nearly 1,000,000 births and more than half that number of deaths annually, and out of those 500,000 deaths at least 120,000 are dead infants—"a vast army of small human beings that lived but a handful of days." But this is not all, for proportionally to population there were last year four births fewer in every 1000 persons living than there had been in the same number of persons in 1851. If the birth rate were to-day the same as it was in the middle of last century there would be every year more than 60,000 additional infants born. Whilst commenting with satisfaction on the recent substantial decline in the English death-rate *at all ages* Dr. Newman rightly insists on the importance of discriminating the ages at which this improvement has taken place. "In England and Wales," he says, "there has been no change in the infant death-rate, the deaths of infants still continue at the old high rate—one in six dying before it is twelve months of age." Nor is England alone in this respect. In other civilised nations also, with few exceptions, the birth-rate is declining and the same is true of the general death-rate. But infant mortality, as a rule, is stationary or even increasing. The Registrar-General is quoted as responsible for the statement that in the Australasian Commonwealth, as well as in New Zealand, Ireland, Norway, Sweden, the Netherlands, Switzerland, and Denmark, it shows signs of decreasing, the death-rate of infants falling to a comparatively low figure in several of the countries last mentioned. But the foregoing are exceptions. In foreign countries, as a rule, infant mortality is higher than in Great Britain and in some of them—e.g., Austria and Chili—it reaches extremely high figures. But the author goes further in his analysis of infant mortality and shows that the chief incidence of death among infants is upon the earliest months of life. Of the deaths under one year in this country nearly half take place within the first three months, against 21 per cent. in the second three months and 30 per cent. in the last six months of the first year. Going still further, we note that in the first month of life a higher proportion of infants die than in any other month of the first year. Dr. Farr has shown that a like excess of incidence was noticeable in 1864. Thus, 57 per cent. of the total infant deaths occurred in the first month, after which the rate decreased almost steadily until the twelfth month, when it was less than 10 per cent. of the whole.

As regards the topographical distribution of infant mortality, we learn that it is highest in the Northern and North-Midland districts and lowest in the area south of a line drawn from the Wash to the mouth of the Severn. On reference to the map of England it appears that the imaginary line which divides the high mortality districts from the low is also the line which divides the agricultural from the industrial, particularly the mining and textile, portion of the community. Some counties are characterised by a uniformly high, and others by a uniformly low, infant mortality. Among the former are Northumberland, Durham, York, Lancaster, Chester, Stafford, Nottingham, Leicester, and Warwick. Among the latter are Westmorland, Wiltshire, and Dorset. This state of things is not peculiar to any one year or to any recent group of years, the counties that in 1891–1900 showed either a high or a low death-rate having been similarly circumstanced in the preceding decade. But in order to exhibit the extremes of mortality it is necessary to compare areas smaller than counties, to contrast the rates of exclusively urban areas with those of areas that are mainly rural. This Dr. Newman has done and he has shown that the rate in certain industrial English towns is more than double the rate prevailing in definitely rural districts. Whatever may be the effect of density as such on the health of the people, it is certain that the excessive fatality prevailing in many urban districts is, as Dr. Newman expresses it, "an effect of the towns," the older and denser parts of each great town being the most destructive to infant life and the outer zone the least destructive. The distribution of infant mortality in Great Britain follows mainly in the wake of "urbanisation" combined with the industrial and social conditions accompanying it. In its most acute form it becomes a problem of town life. Rural life as found in agricultural counties appears to be favourable to infancy, probably owing to concomitant social conditions and domestic habits. The diseases that are most destructive to infant life are: (1) immaturity, which causes 30 per cent. of the total deaths at this age; (2) lung diseases, 17 per cent.; and (3) diarrhœal diseases, 14 per cent. Atrophy and congenital defects are grouped together with premature birth to form the first of these classes, as having an ante-natal origin. These children are born in such poor physical condition that they are unfit to live and find a few hours or days of extra-uterine life too much for them. They are not so much diseased as merely unfit, and are either not ready or not equipped for separate existence. In a table copied from the Registrar-General's last report the incidence of these and other groups of disease is shown upon urban and rural districts respectively on the average of the last five years.

It is noteworthy that whilst lung diseases and diarrhœal diseases are vastly more fatal in the towns than in the country, "wasting diseases," as they are called by the Registrar-General (Group I. of Dr. Newman), are almost as destructive in the country districts as they are in the towns of England. We have not space to follow Dr. Newman in tracing to their causes the various forms of disease that afflict infant life but it may be stated generally that diarrhœal diseases are intimately related to artificial feeding of infants which nowadays seems to be supplanting breast-feeding in practically all sections of society and that most of the other post-natal causes of death must be considered in relation to the employment of the mothers, the mortality of infants being high or low according as they are left or are not left to the guardianship of "caretakers."

An extremely interesting section of the book is that which treats of the occupation of females as tending to injure young women and prospective mothers and through them their offspring. It is largely based on the evidence given by the lady inspectors of factories before the recent Committee on Physical Deterioration. Dr. Newman summarises this section of his book thus—the operations of female factory labour are three-fold: "First, there are the ordinary injuries and diseases to which women and girls in factories are liable; secondly, there is the strain and stress of long hours and hard work to the pregnant woman; and, thirdly, there is the absence from home of the mother of the infant. It cannot be doubted that these are the factors in the relation between factory occupation of women and a high infant mortality."

Dr. Newman suitably acknowledges his indebtedness for the materials of his book to Dr. Tatham and to Sir Shirley F. Murphy as well as to several other well-known sanitarians whose writings he has drawn upon extensively. In conclusion, we cordially recommend the work to the attention of medical officers of health and of all others who are interested in this important question.

The Morphology of Normal and Pathological Blood. By GEORGE A. BUCKMASTER, D.M. Oxon. With five plates, some coloured, and 14 illustrations in the text. London: John Murray. 1906. Pp. 244. Price 10s. 6d. net.

A COMPLETE knowledge of the literature on the blood is practically beyond the reach of anyone. Although the various excellent works on this subject which exist in English have not been consulted the author appends 14 pages of references to authorities which have actually been consulted. The work consists of eight lectures delivered in the University of London. Regard has been had to the close relationship of physiology and pathology to medicine, so that in this volume the physiologist, the pathologist, and the medical practitioner will find the latest and the best that recent scientific investigation has to record on a subject which daily becomes of greater and more extensive import and significance.

The first two lectures deal with the red corpuscles generally and with many specific points connected with them, such as their specific oxygen capacity, their behaviour to stains, polychromatophilia, hæmoglobin content and its condition in the corpuscles, and the polycythæmia of high altitudes. The red corpuscle possesses no single feature that can with certainty be relied upon as evidence of its life; it shows no sign of metabolic activity and exhibits a function which is purely chemical and physical in character—that of an oxygen carrier. Indeed, our knowledge of the origin of the red disc and its duration of life is still limited; in fact, our knowledge is so limited that "we are entirely ignorant either as to the place or manner of formation of hæmoglobin." The author regards polychromatic staining as a sign of degeneration. In regard to polycythæmia the number of corpuscles may vary greatly in health and the author does not attach much importance to a simple count of red discs. It appears that both the number of corpuscles and the percentage of hæmoglobin augment during residence at high levels. Very interesting experiments are given on this subject in the second lecture.

In dealing with hæmolysis within and outside the organism the author assumes the existence in the red discs of a surface layer or envelope of varying permeability. Regeneration of red corpuscles and hæmoglobin may take place after excision of the spleen. As to the action of hæmolysins, which can be artificially produced in sera, the only test is given by their behaviour towards certain red corpuscles. It is a definite toxic substance for a specific body, the red corpuscle. They are all destroyed by a temperature at 55° C. maintained for half an hour, which distinguishes them from other toxins and certain ferments.

The fourth lecture is devoted to the white corpuscles of the blood. This lecture deals fully with the subject both historically and from a practical point of view. The leukæmic lymphocyte is probably not necessarily connected with purely lymphoid tissue. Of the abnormal cells which may be found in blood the majority appear to have migrated from the bone marrow. For the examination of fresh marrow the author strongly commends the elder-pith method introduced by Arnold of Heidelberg.

The fifth lecture deals with leucocytosis, leucopenia, and leucolysis, a chapter of special interest and most suggestively treated. The next lecture is devoted entirely to blood plates. A full account is given of Deetjen's method which enables the observer to see an enormous number of these bodies, which appear "like a miniature starry heaven" on the thin sheet of solid agar. That they disappear rapidly and show blood is incorrect. The author holds that platelets are produced both inside and outside the body by damage to the blood plasma (p. 121). Indeed, he believes that the platelets are artefacts or pathological bodies which, according to their orgin, fall into four groups: (1) those containing hæmoglobin; (2) those destitute of hæmoglobin, (3) those with an inner body; and (4) those without an inner body

The seventh lecture is of more purely chemical and forensic interest, being concerned as it is with the guaiacum, hæmin, and biological tests for blood. It deals fully with the subject of "precipitins" The eighth lecture is a comprehensive one and is of great interest to medical men, as it discusses the morphology of pathological blood.

A most valuable appendix (pp. 181–218) dealing with selected clinical methods for investigation of the blood and fluids from serous cavities will prove most useful, as much that is obsolete in methods has been omitted while those that have proved of value are fully set forth.

We strongly recommend this work to the consideration of the physiologist, the pathologist, and the practitioner of medicine. It gives the latest and most trustworthy results, résumé, criticisms, and methods in regard to that fluid which we know from Mephistopheles "is juice of quite peculiar kind."

The Report of the Departmental Committee appointed by the Board of Agriculture to inquire into the Ætiology, Pathology, and Morbid Anatomy of Louping Ill and Braxy. Printed for the Government by Darling and Son, Bacon-street, E. In three Parts. 1906.

THIS report, consisting of three separate blue-books, one of which contains no less than 342 pages, is the result of an investigation carried out by a committee consisting of Professor D. Hamilton, Dr. McI. McCall, Mr. Wheler, Mr. Craig, Mr. Young, and Mr. A. Berry, all of whom are well known in the medical, veterinary, and zoological worlds. The investigation was commenced in the spring of 1902 and was carried out until the end of last year. The species of animals affected and the sources of contagion, particularly with reference to the agency of the tick and the different methods by which animals could be inoculated, are related in full detail. Maps have been made showing the distribution of the two diseases in various parts of Scotland, and an organism has been detected to which the ailment known as louping ill can be attributed. The reports are full of interesting bacteriological data and the summaries of the investigation of the two diseases are as follows.

"Braxy and louping ill form two of a group of specific bacterial diseases, the primary habitat of the bacteria which are the cause being in each case the alimentary canal. The germs of this group of diseases are picked up by the animal when feeding and the fatal effect may be prevented by drenching with the culture of the respective bacilli during the period of resistance. At some seasons of the year the blood of the sheep destroys the bacteria and at such times the animal is proof against them; at other times the blood is unable to resist the invasion of the bacteria and death ensues.

A very remarkable discovery was made with regard to the question of susceptibility and immunity. It was found that if the blood of a healthy sheep was placed in a test tube, a culture of the louping ill bacilli added to it, and the mixture inoculated into the body, very opposite results were obtained at different seasons of the year. If this was done in the spring, during the louping ill season, the organism as a rule multiplied freely in the blood, whilst at other times of the year the blood destroyed the bacilli, and a period was eventually reached in July and August when this bactericidal action of the blood became complete. During certain months of the year the louping ill bacilli may apparently reside and multiply in the alimentary canal without occasioning any injury to the sheep; in fact, e walls of the stomach and intestine form a complete rrier to their passage into the peritoneal cavity or into e tissues. This seems to be due to the blood having an fluence inimical to their growth at these particular times. hen the contagious period, viz., spring time, approaches, ving to the blood failing in its power to destroy the bacillus, e protective influence is lost and the organism, if now cked up by the sheep for the first time, is able to pass rough the wall of the intestine with facility. Thus sheep, hich when grazing pick up the organism during the season hen they are not susceptible, usually allow of its passage ong the intestine without detriment and are rendered mmune. Few, if any, become infected a second time.

The most important result of the investigation, when condered from the view of the owner of the sheep and of the nimals themselves, is that certain experiments were done to ndeavour to find out a preventive treatment and the results ppear certainly to have been, so far as they went, satisactory. The drench which proved most satisfactory was repared by incubating the specific bacteria on geloze-beefea, a small quantity of which, mixed with water, was dministered to each sheep by the mouth, a second dose eing given from a week to a fortnight later.

According to the report "the results have proved eminently atisfactory." For example, in the case of louping ill, in he first series of experiments ten sheep were treated in June, 903, and none of them died from the disease. In the second eries 175 were treated and two only died from louping ill, hilst in the third series of experiments 1340 were treated nd only one died, that being considered to be a doubtful ase. In regard to braxy 34 sheep were treated in the first ries of experiments and none of them died from this isease, whilst in the second series 1534 were subjected to e drenching experiments and only nine (of which at least ree were doubtful) succumbed. The report has added aluable knowledge to two of the least known of diseases of eep and, as stated, distinctly demonstrates what necessity ere is for a more extended and trustworthy knowledge of eir nature and causes. We may conclude with a quotaion from the introduction of Part I., "From a pathological oint of view, they (the diseases of sheep) are a perfect ine of wealth, are fraught with scientific problems of the ighest interest and importance, and are most suggestive of hat may turn out to be a new light on the pathology of any of the contagious and infectious diseases of man and ower animals."

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1 *Manual of Diseases of the Eye.* By CHARLES H. MAY, M.D. New York, Chief of the Eye Clinic, Columbia University, &c., and CLAUDE A. WORTH, F.R.C.S. Eng., Ophthalmic Surgeon to the West Ham and East London Hospital, Assistant Surgeon to the Royal London Ophthalmic Hospital, Moorfields. London: Baillière, Tindall, and Cox. 1906. Pp 400. Price 10s. 6d. net.

THE fifth edition of May's Manual of Diseases of the Eye has been prepared by Mr. Worth. It preserves the high reputation which the book has already obtained. Like most of its competitors this manual has all the characteristics of a condensed text-book. In the process of condensation the author is liable to lose sight of the special requirements of students. Whilst the author of a text-book is justified in assuming some elementary knowledge on the part of his readers it is these fundamentals which require special emphasis and expansion by the writer of a manual. We regard it as a prime function of a manual to bridge the gulf between physiology and pathology. This is especially the case in ophthalmology, where the student is confronted with optical difficulties. Yet in the manual under consideration—and it is no exception in this respect—elementary optical principles are relegated for discussion to Chapter XXI. It is extremely illogical to describe for students the normal and pathological conditions of the fundus before teaching in detail the means whereby they can verify the descriptions for themselves. Another evidence of condensation is observed in the endeavour to crowd too much into the compass of the manual. This is noticeable not only in the mere mention of rare conditions such as simply confuses the student without adding to his stock of useful knowledge, but also, and in a more reprehensible manner, in the enumeration of many methods of treatment without proper indications for their use and of their respective advantages.

Apart from the general arrangement and insufficient discussion of elementary principles to which attention has been drawn May and Worth's Manual is a favourable specimen of its class. We may, perhaps, refer to a few details which might be improved in a future edition. Some reference should be made to the treatment of wounds involving the canaliculus. Whilst angular conjunctivitis and the diplobacillus of Morax-Axenfeld are both mentioned their relationship is not stated. We have been unable to find any mention of the so-called xerosis bacillus, though it is frequently present and cannot be diagnosed morphologically from the Klebs-Löffler bacillus. The palpebral and bulbar forms of spring catarrh are only exceptionally found combined. No mention is made of the rare cases of transverse calcareous film of the cornea in eyes with good vision; though the treatment given is applicable to these cases alone. A distinction should be drawn between posterior staphyloma and the myopic crescent. The suggestion of the use of a myotic in the treatment of some cases of iritis is inadvisable in a student's manual.

The illustrations are a special feature of the book—335 figures, including 21 coloured plates. They are for the most part excellent. Figs. 33 and 34 do not represent the ordinary appearance of lamellar cataract. The arrangement of vessels in Figs. 37 and 38 is unusual and in any case these figures should be turned round. The position of the lacrymal sac in Fig. 88 is inaccurate. Fig. 111 is not a good picture of episcleritis, nor is Fig. 171 an accurate diagram of a normal iridic angle. Figs. 179 and 180 of iridectomy and Figs. 188 and 189 of cataract extraction are reproduced from very successful photographs but diagrams on a larger scale would be more instructive.

Die Blinddarmentzündung in der Armee von 1880–1900. (*Perityphlitis in the Army from 1880 to 1900.*) By Dr. STRICKER. With ten plates. Berlin: August Hirschwald. 1906. Pp. 95. Price 4 marks.

THIS small volume consists of a report on all cases of appendicitis, or, as the author terms it, perityphlitis, which have occurred in the German army during the 20 years 1880–1900 and in addition a few statistics are given in regard to cases of the succeeding years, 1900–05. The number of cases brought under survey is very large, amounting to 6390, so that on this account alone it forms a very valuable contribution to the literature of the subject in regard to mortality and other statistics. On the other hand, it must be pointed out that these cases have occurred under very varied conditions of diagnosis and treatment and therefore the statistics in regard to them cannot be accepted with the same confidence as those involved in a series of cases under one surgeon or at one of our own hospitals.

From the total number of 6390 cases Dr. Stricker deducts 94, leaving 6296 cases. After a perusal of the reports of these 94 cases he comes to the conclusion that they presented no definite signs of inflammation and that they should be classed in the category of constipation or appendicular colic. They yielded readily to aperient treatment. The treatment during these 20 years has been essentially medicinal or expectant, operation only being resorted to in cases of definite abscess formation or general peritonitis; to that of the 6296 cases, only 235, or 3·7 per cent., were operated upon. The total mortality amounted to 270 deaths, or 4·3 per cent., but the mortality of the cases operated upon amounted to 28 per cent. The figures for the cases of appendicitis during the years 1900–05 compare very favourably with these and point to considerable improvement in the surgical treatment of the disease. Thus, the percentage of cases operated upon during this period rose to 14 per cent., with a mortality of 15·5 per cent., but it is pointed out that the mortality of the surgical cases varied for the different army corps from 0 to 34 per cent. The total mortality for all cases of appendicitis during this period 1900–05 was reduced to 3·1 per cent.

Although the author naturally regards with approval the improved surgical skill as evidenced by these figures, he is not in favour of adopting the more advanced surgical treatment in the army. He points out that whereas only 11·3 per cent. of the total number of cases were invalided out of the service, of the cases treated surgically 71 per cent. were dismissed as unfit. He admits that with more general surgical treatment this proportion would be considerably reduced but he thinks that it would still amount to at least 50 per cent., a supposition which appears hardly justified in the light of statistics from other sources.

In regard to recurrences, 276 or 4·4 per cent. of the cases had had attacks previously to their military service; 905, or 15 per cent., had recurrences during their service; and of 910 cases which he was able to follow up after leaving the service, 144, or 18·8 per cent., recurred, leaving 766, of which 92, or 12 per cent., suffered from chronic appendicular trouble and were in consequence rendered unfit for further service. More than half the recurrences took place within the first year. With such a large supply of data at his command Dr. Stricker is able to discuss with some effect the interesting question as to whether appendicitis is actually so much on the increase as is by some supposed. He has arranged a table showing in the successive periods of five years the number of cases diagnosed as appendicitis, liver complaints, stomach and intestinal diseases, and peritonitis. This table clearly shows that whereas there has been a steady and large increase in cases of appendicitis there has been a decrease in other abdominal cases in more than corresponding proportions and he is therefore led to the conclusion that the increase in cases of appendicitis is only apparent and due to a more accurate recognition and diagnosis of the disease. Many details are given in regard to the different exciting causes of the disease and the post-mortem findings, and they agree for the most part with those of other series of cases. The last chapter of the book is devoted to the question of the importance of a leucocyte count as a help to the diagnosis of suppuration and to the determination of surgical interference.

The Combined Treatment of Diseases of the Eye. By G. HERBERT BURNHAM, M.D. Tor., F.R.C.S. Edin., Professor of Ophthalmology and Otology at the University of Toronto. London: H. K. Lewis. 1906. Pp. 92. Price 3*s.*

THE "combined treatment" consists of hypodermic injections of pilocarpine, one-twelfth of a grain up to half a grain, together with the internal administration of mercury and iodide of potassium. The injections are given daily for from ten to 21 days. After an interval of from two to four weeks another series of from seven to ten injections is given. This series is then adhered to and kept up with intervals varying from four to eight weeks. The treatment can be continued for an indefinite time. As might be expected, the best results are obtained in syphilitic disease, but considerable improvement has been noticed in cases of iritis, iridocyclitis, and sympathetic ophthalmia. In many of the cases recorded insufficient details of the clinical history are given, and the reader is dependent entirely upon the author's bare statement of diagnosis. A regrettable tendency to regard the treatment as a panacea for all intractable diseases of the eye is noticeable, benefit being alleged in such cases as disease following masturbation, conical cornea, paralysis of the third nerve, hypopyon ulcer, "hyalitis," retro-ocular neuritis, albuminuric retinitis, and so on. We consider that the author is scarcely justified in appropriating this method of treatment in the manner he has done. It is a recognised mode of treatment in properly selected cases and the results which he has obtained are not so revolutionary as to merit a special monograph. The virtues of precision and perseverance in treatment are rightly emphasised, but though they bear repetition they are amongst the axioms of the conscientious practitioner.

LIBRARY TABLE.

Archives of the Middlesex Hospital. Vol. V. Fourth Report from the Cancer Research Laboratories. Edited by W. S. LAZARUS-BARLOW, M.D. Cantab., F.R.C.P. Lond. London: Macmillan and Co. 1905. Pp. 277.—This report from the Cancer Research Department of the Middlesex Hospital contains the records of much useful work, chiefly statistical and histological. The first part consists of a tabulated synopsis of the post-mortem examinations and operations on cases of malignant disease in the hospital during the year 1904, with details of the secondary deposits and the microscopical nature of the growth in all cases. There are also statistical studies of "cancer ages" and the site-incidence of carcinoma to which reference has already been made in a leading article.[1] Mr. W. T. Hillier contributes a note on three experimental inoculations of animals with considerable amounts of epithelium, but in each case the inoculated material was treated as a foreign body and no epithelial growth resulted. A histological study of considerable interest by Dr. G. T. Wrench deals with the relation of elastic tissue to carcinoma. He finds that the small-meshed intra-alveolar stroma of carcinoma, whether primary or secondary, is devoid of newly formed elastic tissue except in the neighbourhood of vessels or ducts. In the special instance of primary carcinoma of the liver he finds at least two varieties of stroma—a small-meshed form free from elastic tissue and a large-meshed variety containing abundant elastic tissue and indicating a pre-existing cirrhosis. These observations therefore throw some light on the cases of so-called cancer with cirrhosis. Dr. P. Campiche and Dr. W. S. Lazarus-Barlow contribute a paper on 1976 cases of malignant disease of the breast, which constitutes a most exhaustive study of the clinical and pathological features of the disease both in females and males. An interesting paper of similar character on malignant disease of the liver and bile passages by Dr. H. A. Colwell comprises statistics of 41 cases of primary carcinoma of the liver, 31 of the gall-bladder and bile passages, and 608 of secondary deposits in the liver observed in 12,500 necropsies, of which about 3300 were cases of malignant disease. Some information of very considerable interest is afforded, especially in regard to the frequency of gall-stones in cancer of the gall-bladder and bile passages, notably the rarity of biliary colic in that condition and the later age at which these cases occur in women than in men. The same observer contributes a short paper on the relation of carcinoma to gall-stones in which he states that the occurrence of gall-stones in cases of carcinoma in the two sexes is approximately proportional to the liability of males and females to cancer; that gall-stones are met with in both sexes approximately two and a half times as frequently in carcinomatous as in non-carcinomatous cases; and that the liability of gall-stones to be associated with carcinoma is independent of the seat of the primary growth. A monograph on Malignant Disease of the Prostate is contributed by Mr. J. W. Thomson Walker, *based on a very minute study* of 16 cases, a larger number than has been previously recorded. This paper constitutes a valuable addition to the literature of the subject and one worthy of note, since there can be little doubt that carcinoma of the prostate is more common than statistics show owing to the fact that the malignant nature of some of the cases is at present overlooked as a result of their tendency to be confined to the gland itself. The history, symptoms, and physical signs as observed in the cases forming the basis of the paper are carefully summarised and the histological characters of the various growths are described in detail in all the more recent cases. A paper on the x ray treatment of malignant disease is contributed by Mr. C. R. C. Lyster, in which the results of the treatment are recorded as observed in 46 cases. The indications for the treatment and its limitations are succinctly stated and critically considered. Mr. W. Sampson Handley records the results of a research into the manner of the parietal dissemination of mammary carcinoma in continuation of his previous work. He has studied microscopically sections of the skin around the breast and finds that the appearances obtained support the view of the centrifugal spread of the growth along the meshes of the deep fascial lymphatic plexuses, a process to which he has applied the term of "fascial permeation." A short paper by Dr. W. Gordon Taylor deals with giant cells in sarcomata, which he finds occur only in sarcomata connected with bone, with the single exception of one case of sarcoma of the parotid gland. Dr. J. J. Douglas records the results of a further study of the blood in malignant disease. An interesting, suggestive, and important paper by Mr. A. G. R. Foulerton deals with the subject of chondrifying carcinoma, with a record of three cases. A detailed bibliography is also appended. Mr. Foulerton discusses the nature of the process of chondrification in carcinoma and puts forward a bio-chemical theory to explain it. The paper affords a very notable contribution to a subject which is little understood. As a whole this volume represents good, solid work in the domain of cancer research and does great credit to the editor, Dr. Lazarus-Barlow, and his co-workers.

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[1] THE LANCET, March 10th, 1906, p. 684.

Manual of Diseases of the Nose and Throat. By CORNELIUS GODFREY COAKLEY, A.M., M.D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York City; Laryngologist to Columbus Hospital, the University and Bellevue Hospital Medical College Clinic; Consulting Laryngologist to the New York Board of Health, &c. Third edition, revised and enlarged. Illustrated with 118 engravings and nine coloured plates. London and Glasgow: Henry Kimpton. 1906. Pp. 94. Price 14s. net.—The third edition of this book is well up to the standard arrived at in previous editions and shows, amongst other additions, a considerable increase in the space devoted to the treatment of the accessory sinuses of the nose. The third chapter contains a very full and careful description of the methods of examining the nose, the larynx, and the naso pharynx, followed by a short account of the instruments used. The fifth chapter is devoted to the causes of nasal obstruction and its symptoms. Diseases of the nose are then discussed seriatim, though the pathological anatomy is only cursorily dealt with. The appropriate methods of treatment in hypertrophic rhinitis best suited for the various pathological conditions found in this disease are given. In atrophic rhinitis Dr. Coakley has not alluded to the more recent forms of treatment; in fact, the only one which he advises is irrigation and the application of oil sprays afterwards. The treatment of this disease might well be brought up to date, especially in view of the admirable work which has recently been done by Moure in the subdivision of atrophic rhinitis. The author very correctly states that membranous rhinitis is not to be *confounded with nasal diphtheria, though it is sometimes* difficult to distinguish between the two. Malignant disease of the nose is very briefly discussed. The seventh chapter, that on the accessory cavities, is far superior, as we have said, to that in the previous editions and is now in keeping with the rest of the book. In peritonsillar abscess Dr. Coakley's incision is almost vertical, in contradistinction to that usually employed in this country which is nearly horizontal and which we consider superior. Diphtheria still receives a large amount of attention, though it seems questionable whether a description of diphtheria should be included in a book of this character. Tuberculosis of the larynx is also amply discussed, Dr. Coakley advocating a very conservative line of treatment and condemning the employment of tracheotomy if the patient is not likely to live for more than a few days; though it is difficult to see that such a view is compatible with the dictates of humanity. Paralyses of the various muscles of the larynx are presented by the author to the reader in such a way as to raise no suspicion as to the uncertainty which has existed as to their pathology. The work concludes with a full chapter on therapeutics, with a fair number of prescriptions suitable for the treatment of the various diseases discussed in the book. This is a handy little volume which will form a useful addition to the library of many general practitioners.

Transactions of the Medico-Legal Society for the Year 1904–1905. Edited by R. HENSLOWE WELLINGTON, Barrister-at-law, and STANLEY B. ATKINSON, M.A.Cantab., M.B.Lond., Barrister-at-law. Vol. II. London: Published for the Society by Baillière, Tindall, and Cox. Pp. 117. Price 5s.—The Medico-Legal Society is a comparatively new society but the number of its members is gradually increasing and it is likely to be productive of much useful work on the border-line of medicine and law. The present volume contains several papers of considerable interest and the records of the discussions which followed the reading of them. Dr. T. Claye Shaw contributes a paper on an Obscure Form of Alcoholism involving Irresponsibility. He points out that the connexion between drunkenness and crime is so immediate that every detail of the act should be well analysed with the view to explain the question of responsibility. He draws attention to one phase where the signs of inebriety were so masked (though the real loss of inhibition was intense) that only by a special consideration could a right conclusion be arrived at as to whether the individual was to be held responsible or not. If an individual has suffered from inebriety but has been cured the brain centres may resume their natural conditions. In some instances, however, complete recovery does not occur, though the patient may regain the power of the ordinary reflex brain functions to so complete a degree as to deceive those with whom he was usually in contact, whilst he might at the time be in a state of "minus inhibition" and be really dangerous to himself or to others. To the ordinary individual he would pass for a sane person, but he is really unfit for responsibility and his acts are more like those of a somnambulist or of *a person in* the stage of recovery from an epileptic fit. The Hon. Sir Joseph Walton contributes some interesting Notes on the Law of Evidence, in which he impresses upon his readers that the rules of reasoning and proof which are applied in an English court of justice are, speaking generally, the rules of ordinary logic and common-sense. Amongst other papers we may mention the following: The Definition of Accident, by Dr. S. B. Atkinson; the Law Relating to the Criminal Responsibility of the Insane, by Mr. A. D. Cowburn; Privileged Communications and

Professional Secrecy, by Dr. A. G. Bateman; and Degeneration, its Causes and Prevention, with Reference to the Proposed Sterilisation of Certain Degenerates, by Dr. R. R. Rentoul. Some of the above formed the basis of interesting discussions

Methods in Plant Histology. By CHARLES J. CHAMBERLAIN, A.M., Ph.D., Instructor in Botany in the University of Chicago. Second edition. London: T. Fisher Unwin; Chicago: The University Press. 1906. Pp. 262. Price 10*s.* 6*d.* net —The first edition of this book was published in 1901 and embodied the results of a course of histological technique conducted by the author in the University of Chicago. Since that time laboratory methods in plant histology have been much improved and as a consequence the present edition of the book will be found to contain more detailed information than its predecessor. It is divided into two parts—the first dealing with the principles of the preparation of specimens such as section cutting, staining, mounting, and so on; while in the second part these principles are applied to specific cases. This latter portion of the book will be found of particular use to the beginner, for the types selected are such that he will not only find useful practice in the methods of microscopic technique but will be able to form at the same time a satisfactory collection of specimens for study illustrating plant structure from algæ to angiosperms. The directions for collecting and growing laboratory material will also be found helpful. Full details are given with regard to the somewhat tedious Venetian turpentine method of mounting—a method, however, which has been practised with much success by the author and his students. He states that "the surprising beauty of successful preparations will compensate for the large proportion of failures which are likely to occur." The book is well illustrated. The curriculum of the medical student takes up so much of his time that he is not very likely to devote himself to a study of botany in its higher branches, but the book will at any rate prove useful for reference.

JOURNALS AND MAGAZINES

The West London Medical Journal.—The July number of this journal contains the Cavendish lecture delivered by Sir William Macewen on Some Points of the Surgery of the Lung in which the physiological doctrine that collapse of the lung takes place directly an opening of any kind is made in the pleura is combated and cases are quoted in which the lung remained in contact with the chest wall even after extensive wounds. An instance is recorded in which surgical interference in a case of pulmonary tuberculosis practically saved a patient's life. Under the heading of Proceedings of the Society is recorded an interesting discussion on influenza, dealing especially with the sequelæ and the complications of the disease,

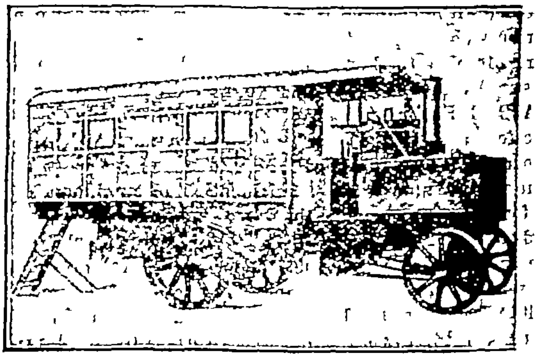
The Medical Chronicle.—The June number of this journal is devoted mainly to the subject of syphilis. It opens with a paper by Dr. W. Hale White on the Clinical Aspects of Visceral Syphilis, which is followed by one on the Present Treatment of the Disease, chiefly from a military point of view, written by Lieutenant-Colonel E. Butt, R.A.M.C. Continuous rather than interrupted administration of mercury is recommended, intramuscular injection being advised as the most convenient method, while local application of mercurial preparations is deprecated. Dr. G. H. Lancashire writes of tuberculous and syphilitic affections of the face. A brief note, by Dr. I. Walker Hall and Dr. J. Randal Hutchinson, points to the inefficacy of such drugs as ammonium hippurate, citarin, and thyminic acid in controlling the endogenous uric acid in gout.

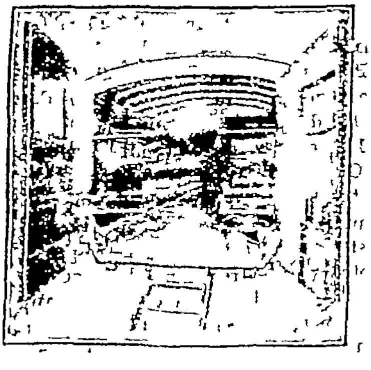
The Bristol Medico Chirurgical Journal.—The June number of this journal contains three articles of gynæcological interest. Dr. E. W. Hey Groves writes on the structures forming the pelvic floor and on the relation of pain to pelvic displacements; Mr. C. Hamilton Whiteford on diagnosis and treatment of tubal pregnancy; and Dr. Eliza L. Walker Dunbar on the new theory and prophylaxis of eclampsia. This last article is in commendation of thyroid extract as a prophylactic measure and as a remedy after symptoms have set in. Dr. I. Walker Hall records some new methods of clinical pathology, including modes of examining gastric contents, urine, and fæces.

New Inventions.

THE "RASTILON" AMBULANCE SPRING.

Messrs. J. and A. Carter of Great Portland-street, London, W., have fitted to some ambulances built for use in the service of the Portuguese Government over rough roads in connexion with a military expedition in West Africa, a specimen of which is shown in the illustration, a new spring which they have invented and named the "Rastilon" The springs are mounted in a circular box and connected with iron rods carrying the stretcher. The circular box protects them in a great measure from atmospheric influence and they are so constructed as to adjust themselves automatically to the weight which they may be carrying. Their resiliency is very great whether that weight be 8 or 18 stones while at the same time there is practically no oscillation. The ambulances are probably the largest that have yet been made. Each contains eight stretcher beds and there is ample provision for attendants. The steam lorries which carry the bodies of the ambulances are of a particularly heavy make, weighing five tons each. The driving engines are of 45 horse-power. The lorries are made interchangeable with freight-carrying wagons for store haulage. Of course, the testing of springs on the floor of a workshop is a different thing from testing them in actual use but if they bear out the claims that are made for them by the inventors in the rough country of West Africa their adoption for ambulance work in our own and other countries will be very desirable.





THE LANCET.

LONDON: SATURDAY, JULY 28, 1906.

"Christian Science" and the Death of Major Whyte.

THE Attorney-General has ordered that a *nolle prosequi* should be entered in the case of Mr. GEORGE ROBERT ADCOCK, formerly a medical practitioner and still upon the Medical Register, who was recently put upon his trial for manslaughter at the Old Bailey, with the result that the jury disagreed as to his conduct. The course thus taken will evidently commend itself to Mr. Justice BIGHAM who conducted the lengthy trial referred to, for he intimated his opinion upon the subject to counsel representing the prosecution soon after the jury had failed to arrive at a verdict, and there is no reason to believe that his lordship's estimate of the law and evidence was not in every way correct. Mr. ADCOCK was tried not as a "Christian Scientist" who had assisted at the bamboozling of Major WHYTE, and who, by holding out delusive hopes of restoration to health by means of "Christian Science," had brought him to a lingering and a painful death; he was charged with manslaughter on the ground that, standing to Major WHYTE in the relation of medical attendant, he had failed to exercise care, attention, and proper skill towards him, in consequence of which his patient had died. Had the jury been able to arrive unanimously at the conclusion that the accused was called in and had acted as the deceased's medical attendant the second portion of the question propounded to them would probably have afforded them little difficulty. That point, however, is not under discussion; but the general circumstances of the case demand some notice from us apart from the unsatisfactory legal result.

We need not recite the circumstances which led up to Major WHYTE falling into the hands of the "Christian Scientists" or describe the "treatment" meted out to him by others besides Mr. ADCOCK. They are familiar to any of our readers who may be interested in the case from the reports of the inquest in the daily newspapers, and they have been briefly referred to in THE LANCET. It is enough to say that the "treatment" so far as Mr. ADCOCK was responsible for it, was such that, had he been acting in the capacity of the patient's medical attendant, he would have deserved, and doubtless would have received, very severe punishment. It seems, however, to be tolerably clear that although there was evidence that those nearly related to Major WHYTE knew the accused to have been a qualified practitioner, and were basing hopes upon this, the patient himself did not so regard Mr ADCOCK and did not employ him as his medical attendant, but, on the contrary, would have refused any treatment inconsistent with "Christian Science." At all events there was sufficient doubt in the eye of the law as to the guilt of the accused to justify the division of opinion in the jury which tried him, and a second trial upon the same facts was thus made undesirable. The result of the case is not encouraging to those who see with regret lives needlessly sacrificed, but at all events it makes the situation clearer. Mr. ADCOCK could not be convicted and the other persons censured by the coroner's jury which found a verdict of manslaughter against him cannot be prosecuted. Captain BAYNES, Mr. SMITH, Mrs. GRANT, and all those, from Mrs. EDDY downwards, who are morally responsible with them for such deaths as that of Major WHYTE, are safe, so far as the criminal law at present stands, from conviction for manslaughter. If, however, we are satisfied that the law has no power to punish those who act as the accused acted and as those of like thinking would act, it does not follow that we need regard the law as satisfactory, however difficult its amendment may be. If a medical man's patient dies, and there is evidence that he has been wrongly treated, the medical man may be put upon his defence: he may be convicted and punished, or may be acquitted, according to the degree in which want of skill and care on his part has contributed to the death. If a foolish or designing person, who has abandoned Christianity and has avowed a disbelief in science, calls himself a "Christian Scientist" he may pretend to heal disease by a mumbo-jumbo the absurdity of which places it beyond the reach of reason; yet when his victim dies the law cannot touch the "healer" or the propagandist who has paved the way for him. If a needy and unscrupulous woman rents rooms in the fashionable quarters of great cities and cajoles other women more foolish than herself out of a few sovereigns by the pretence of "telling their fortunes," she may be fined; if a wandering gipsy obtains shillings from servant-maids by similar devices, the "fortune-teller" can be, and is, fined or imprisoned. But as the law stands apparently the "Christian Science healer" can cozen his victim out of life itself by falsely pretending that he has the power to cure disease, and can earn a living by doing so with perfect safety—to himself.

Legislation to meet such a case presents grave difficulties, and the question at once arises for practical persons as to whether such difficulties should be faced or whether we should regard the loss of life which results from "Christian Science" as so trifling that it may be treated as a negligible quantity. The deaths may not be very numerous; "Christian Scientists" are not quite as whole-hearted fanatics as the members of the sect known as the Peculiar People. "Christian Scientists" avoid the awkward consequences which follow the manslaughter of a child through the withholding of medical aid from one not old enough to summon it; and we should probably hear more often of the absence of a medical certificate when adult "Christian Scientists" die if they always unflinchingly carried their professions into practice in the face of great pain or of imminent danger to their lives. Nevertheless, instances of deaths with inquests, and sometimes with abortive prosecutions following them, have been sufficiently numerous during the past few years for the matter to be worthy at least of serious consideration, and the case of Major WHYTE may be taken as illustrating the difficulties to be encountered. He was a man in the prime of life, 44 years of age, an officer in the army who had earned the Distinguished Service Order, and who, unless we assume that the accident which had befallen him and the suffering which had ensued had affected his mental capacity, might assuredly be regarded as one able to guide himself in the ordinary affairs of life. *Is it not possible to interfere directly with such a person if he has once fallen under the influence of "Christian Scientists," covetous of those emoluments which are to be derived from treating a patient able to pay, and perhaps in equal degree ambitious to acquire and to display their baneful control over a fellow creature?* It seems to us that it is not easy to promote the exercise of such interference. It is true that we punish an attempt at suicide, although the person who wishes to destroy his own life may protest that he has a right to do so. The case is not analogous. We do not, however, punish those who merely imperil their lives by acts which, however foolish and dangerous, have usually been regarded as lawful. To exercise any interference by means of argument or instruction is, of course, out of the question. Take the case of Major WHYTE as an example. No one would attempt to reason with persons who would wash their sound bodies with soap and water (as we will credit the aristocratic converts to "Christian Science" with doing) but who would decline to allow a suppurating wound to be washed with those cleansing agents which take the place of soap where dirt, less easy to remove than that which adheres to the surface of the skin, has to be dealt with. It is not possible to argue with people so blind to the ordinary conditions of health and disease. The medical treatment, which might have saved the life of Major WHYTE after his bedsores had developed, would have consisted to a large extent in carrying out with scientific completeness those principles of cleanliness which commend themselves to the good sense of all civilised human beings in the present day. If, however, we cannot legislate directly for the benefit of such persons as may fall into the hands of the "Christian Scientist," and if reason cannot be applied with hope of success either to the patient or the "healer," it may still be possible to deal with the latter as with one who deceives others by false pretences to the danger of their lives, or, in other words, as one who pretends to the title of "healer" without being qualified to heal. The legislature has recognised in the recent Midwives Act a principle which many hope to see extended some day, so as to protect a wider public. In a few years' time no woman will be able to practise as a midwife for gain who has not qualified by actual learning as a midwife, in addition to being registered as such. The purpose of legislation here has been to protect the lives of the public from pretenders to exact knowledge; and in another column of this issue of THE LANCET (p. 249) will be found a brief article showing the valuable work that is done under the Midwives Act. If those who pretend falsely to be able to heal others are rendered legally punishable, deaths under "Christian Science," and under many other forms of charlatanry and quackery, will cease to a considerable extent.

Old Houses in the Country.

IT is an unfortunate [illegible] canons of art and of hygiene are so rarely [illegible] The [illegible] garments are [illegible] ysician, the [illegible]

by a miasmatic atmosphere, and in the same way a house that presents every charm to the eye may have defects which no sanitarian can overlook, even if they do not render it an unsavoury object to the nose. At the present time of the year, when so many people are about to take their annual country holiday, this question of the healthiness of country houses becomes unusually interesting and important. The present preference for old things in matters of art extends also to the choice of country houses. People are paying huge prices for Chippendale chairs, and they are prepared to be equally extravagant for houses and cottages belonging to the same or an earlier period. It is worth while to pause for a moment and to consider whether a beautiful appearance may not be too dearly bought in the matter of houses. A lovely exterior is well enough but the unromantic drains are of more importance. All educated persons know this nowadays and to utter a word of warning against the undue value often given to the one and the lack of consideration bestowed upon the other may seem unnecessary. But knowledge does not keep the world from foolish actions when fashion, the lust of the eye, and similar powerful impulses are at work. It is natural enough that when a man chooses a house in the country the general aspect of the residence should largely influence him. Caught by a pleasant situation, by old walls and creepers and mellow tiles, by convenient accommodation and accessories, the man who is taking a house for his family's country holiday is likely to lose sight of the unobtrusive drainage system. He knows that he ought to make inquiries upon the subject and probably he does so in a perfunctory way, but what he does not know is that habitation of a certain kind of old house must be attended with risk. A good drain is a good thing but it will not counterbalance all the unhygienic disadvantages of warped, imperfect flooring, attics and garrets loaded with the dust of ages, dark corners, and noisome cupboards. Yet too often the beautiful Queen Anne or Georgian house has all these drawbacks and the paterfamilias who hires it may be but poorly rewarded for his expense if the stay in the country instead of resulting only in rosy cheeks and renewed appetites bestows upon his household an affliction of sore-throats, or worse, of diphtheria, or typhoid fever. We are not conjuring up imaginary terrors, for we speak with the recollection of concrete instances that doubtless many of our readers can match only too fully. In fact, nobody would try to deny that there are many old houses where sanitation, disregarded according to our modern notions when the mansion was built, has never been allowed to come into its own. That such was the case with some of the great country seats of England has been clearly shown in several instances which are now historical. Striking examples were afforded by that outbreak of typhoid fever at Windsor which robbed England of Queen VICTORIA'S Consort and by that other attack which so nearly cost the country her present beloved Sovereign. Windsor Castle has since been put in thorough sanitary order, but some of our most famous palaces cannot be so treated, at least in a satisfactory manner, their whole fabric being opposed to genuine hygienic treatment.

Grave drainage defects are naturally, then, to be found much more commonly in old houses, and it is just old houses that at present all the world is looking for when it seeks a country holiday resort. Country air is an excellent thing and to live in a beautiful house is conducive to good health, as every constant source of pleasure and of peace must be, but an old house takes a lot of overhauling and if it is not thoroughly overhauled its beauty may be too dearly bought when to its æsthetic charm are added its leaking pipes or its ineffective water-closets. Too many old houses in the country rely for their drainage upon a water system that will not stand the test of a thorough examination. As is the case with so many other matters, a complicated system imperfectly carried out is worse than a simpler method properly executed. It is far better to have earth closets than water-closets imperfectly flushed. And it is the latter that are far too frequently to be found in the country. Again, inefficient means for the disposal of kitchen refuse and of bath and bedroom waters are only too often to be found in old country houses. and the pity of this is the greater in that with proper arrangements a valuable manure is forthcoming from these various quarters. The well-drained house should never be a possible source of infection to its inmates, but it should, in fact, become a centre of nourishment and of support to its neighbouring vegetable, fruit, or flower garden. Our excellent contemporary the *County Gentleman* remarks in a recent article, which has drawn our attention to the subject of country houses, "Intelligent people on coming down to the country ought to be ashamed of fouling ditches and little water-courses by a crude and lazy system of drainage; the proper destination of kitchen wash and slops is the vegetable garden." This is another of the things that is well known to all educated people and yet how seldom is it carried into practice in England.

We have alluded chiefly to the question of taking a house in the country for a short term of residence partly because this phase of the question is topical and partly because when an old house is purchased nowadays it is usually put into as complete sanitary repair as possible. Not always, however, and our remarks apply with point to those who purchase or hire for a long term an old country house for habitual week-end use. Habitation being fitful the same thorough re-drainage does not always occur. The temptation to take a picturesque house or cottage—and to risk the drainage—is, in these circumstances, strong upon some. It is, in fact, a very costly matter to make really healthy homes of these old cottages and houses. When the walls and roof have been properly attended to, when the drainage system has been thoroughly renovated or installed anew, when the floors and ceilings have been purged of "undesirables," and when baths have been added, an amount of trouble and money will have been expended that would have gone far towards placing a new house upon the desired spot. We willingly admit our admiration of old houses and picturesque cottages, but when it is a question of living in them, even if only for a few days at a time, we hold that their hygienic perfection should be the first thing to be considered. Theoretically the public holds exactly the same view, practically they allow their sense of the picturesque to get the better of their reason. They allow themselves to believe that a little tinkering here and there will set right an absolutely unhealthy fabric.

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Official Regulations and Professional Secrecy.

IN another column we publish a letter from a correspondent in India in which are raised questions affecting the relations of a medical man holding an official position which are of importance firstly to his patients and secondly to his official superiors and perhaps to the official superiors of the patients. Our correspondent desires our opinion upon these points and all must agree that the matters at issue are of the sort that require careful deliberation. It must be remembered that many problems in medical ethics resemble the unsolved problem of three bodies in dynamics, the extent and results of whose mutual attractions cannot be estimated. The relation of the medical man to the patient is clear, the relation of the medical man to his superiors is also clear, but the inter-relations of all three are most complicated. The solution of the problem must therefore be sought along the lines of that peculiarly British mental attribute—compromise.

The first question asked by our correspondent relates to the duties of a medical officer towards a regimental officer reporting himself sick with some complaint to which a certain amount of shame attaches—e.g., gonorrhœa. Medical officers have to fill up two classes of forms concerning both men and officers reporting sick. The one class necessarily contains full information upon the case and is sent in to the Medical Department of the army, whether it be the Indian Medical Service or the Royal Army Medical Corps. The other, which reports the weekly state of the case, goes to the commanding officer for his information. It is not supposed to be a confidential document and is liable to be seen by other officers and by orderly room clerks and the like. Spaces in the form are provided for the names of patients and for their diseases. Our correspondent asks his question as concerning officers alone, but we may say at once that his duty as a medical man is exactly the same whether his patient be an officer or a private. To a medical man all patients are equal. As disease is no respecter of persons, so a sick man is to his medical adviser merely a patient, and the laws of professional honour as regards secrecy are the same in all circumstances. The nature of the disease should be a matter solely between the medical officer and the patient, whatever the patient's grade in the service, and if only the medical officer and his patient were in question the matter would be comparatively simple. But here the third party to the problem comes in—namely, the authorities whose regulations lay down rules for the conduct of the army. It is obviously impossible for the medical officer to satisfy his duty to his patient and to the superiors of both himself and the patient, for on the one hand silence is demanded of him and on the other speech. The direction which compromise might take is at once indicated. We do not presume to lay down any rule for the conduct of the medical officer, for of course he must obey the regulations unless it is generally understood that he will not be found to blame for any technical infringement of them. We should say that the medical officer might very well consult the commanding officer as to the desirability of leaving the disease column blank in the report of the weekly state, which is copied in the orderly room, while at the same time he might, if required, hand in a private report to the commanding officer in which the disease column was filled up. If the commanding officer refused to allow this procedure the medical officer would have his choice of two courses. He could, having satisfied his medical conscience, carry out the regulation of the service to which he is bound or he could throw up his commission.

A second point raised in the letter to which we refer is as to what a medical officer should do when a regimental officer insists upon employing him and a civilian medical officer separately during the same illness, neither medical man being told that the other is attending. In this case the answer is more easy to give. The medical officer attached to the regiment should on learning the facts of the case lay them before his superior—i.e., the principal medical officer or before the officer commanding the regiment. In such a case it is probable that the medical officer would be relieved by his official superiors from the duty of professionally attending the regimental officer, although the former would still be bound to enter the name of the latter upon the official sick list. Practically speaking, we believe that medical officers as a rule find no difficulty in carrying out their work in conformity with the regulations; but, as we have said above, no hard-and-fast rules can be laid down for any general scheme of conduct. Each case of medical ethics must be treated on its merits and in cases where official duties clash with what would seem to be rules of professional secrecy PETER SIMPLE'S remark to Captain SAVAGE may be borne in mind. "Whoever heard of confidence between a post captain and a midshipman?" said Captain SAVAGE. "No, sir," replied SIMPLE; "not between a post captain and a midshipman, but between two gentlemen." A young medical officer may find himself torn between his duty as a medical man to his patient and his duty to his official superiors as laid down in the regulations. He will, we are sure, always find his regimental commanding officer, his principal medical officer, and his brother regimental officers ready to help him to the solution of hard problems, not as his official superiors but as comrades, and he will not do wrong if he consults them and asks their help.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND.—Of 14 candidates who entered for the Intermediate Examination held in July the following nine passed: L. C. W. Bonacina, W. R. S. Ladell, D. J. Law, W. M. Seaber, B Sc. Lond., P. Statfield, J. M. Weir, M.A., B.Sc. St. And., W. A. Whatmough, J. M. Wilkie, B.Sc. Lond., and C. H. Wright, B A. Cantab. In the Final Examination for the Associateship (A.I.C.), of three examined in the branch of mineral chemistry, two passed: J. W. Agnew and I. M. Heilbron; of three in the branch of organic chemistry, two passed: R. Le Rossignol, B.Sc. Lond., and G. W. Monier-Williams, M.A. Oxon., Ph.D. Freiburg; and of eight who entered in the branch of the analysis of food and drugs, and of water, including an examination in therapeutics, pharmacology, and microscopy, the following six passed: J. G. Annan, B.Sc. Lond., C. T. Bennett, B.Sc. Lond., G. W. Glen, F. W. Harris, E. H. Merritt, B.Sc. Lond., and F. Tattersfield.

Annotations.

"Ne quid nimis."

THE PROPOSED UNION OF LONDON MEDICAL SOCIETIES.

ANOTHER step towards the proposed union of London medical societies has been taken since we last referred to the matter[1] and we now have before us the report of the organising committee. This report has been printed after amendment and adoption by the general committee of representatives of the societies and it should now receive the close attention of all individual members of the various societies. The societies are invited to consider the report, and if they approve of the scheme as therein drawn up, to appoint representatives upon a new committee. This committee, together with the Presidents of the Medical Society and the Royal Medical and Chirurgical Society, will form the first council of the new society. The report shows clearly that very careful financial investigation has been carried out and we do not think that the organising committee has included any unwarrantable hypotheses in its estimate of the financial position of the proposed new society. Many difficulties of very various kinds have, we know, been met in the course of the proceedings which have culminated in this report. All the different societies concerned have had, and must have taken, full opportunity of pointing out the obstacles to the success of the scheme. That such wide freedom of discussion in a matter of this kind should be encouraged was, of course, the only manner in which a sound ultimate success could be achieved. It says much for the perseverance, energy, and capacity of the organising committee that so definite and tangible a project should now be before us, and it will, we think, be matter for deep regret if the one or two remaining opponents cannot see their way to reconcile the best interests of their societies with the best interests of the profession in London at large, and these are undoubtedly most to be served by amalgamation. We need not repeat the arguments which we brought forward in favour of the scheme so long ago as July, 1905.[2] None of much weight have been urged on the other side, the only obstacles arising from comparatively small and individualistic considerations. We do not believe that in such a way members of a profession, which of all others should be by its nature and training open to wide and liberal views, can be deterred from a step that is certain to conduce to their dignity, their advancement, and their convenience. Our lady colleagues, whose case presented at first one of the most awkward problems in the scheme, have set a good example. They are coming in as members of those sections which correspond to societies which at present have women members, and are leaving the question of Fellowship for the future to decide. The scheme as outlined in this report contains just provision for the actual demands of those bodies that will contribute property, money, a library, or a museum to the common possession of the new society. A finance committee will be formed on which will be represented, as is especially stated, each of those bodies which are bringing in funds. As regards libraries we may point out that Fellows or members of the Medical, Obstetrical, Odontological, and Ophthalmological societies are to have the privilege of using the library of the new society without payment of the annual library subscription. Perhaps the next most difficult question with which the committee had to deal was that of the publication of the proceedings of the various sections. There are some societies the published transactions of which form the chief attraction in the case of many members. This applies particularly, of course, to those societies the membership of which is to a large extent a country one. We may instance the Society for the Study of Disease in Children and the Society of Anæsthetists. In the case of both these bodies much pains have been bestowed upon, and great value has been attached to, the yearly volumes of "Transactions." Members of such societies need not fear, it seems to us, that they will in any way be losers if the proposed amalgamation comes into force. The monthly publication which is alluded to in the report should adequately fill the place of the specialist "Transactions." Reading the report, as we have done, in a critical spirit we find little to cavil at, and we look forward confidently to the materialisation of the scheme when the societies have once more considered the matter in detail and have nominated their representatives.

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[1] THE LANCET, Feb 3rd, 1905, p. 311.
[2] THE LANCET, July 29th, 1905, p. 301.

JUVENILE SMOKING.

NOW that the evils of smoking by juveniles are acknowledged by a *Select Parliamentary* Committee it may be presumed that some endeavour will be made to stop the sale of tobacco and cigarettes to children below a certain age. Two Bills drafted with this end in view were submitted to the consideration of the committee which agreed with the aims of both that introduced by Lord Reay and that drafted by Sir Ralph Littler, K.C., but the members concluded that the latter was the more workable of the two. They therefore were led to recommend that legislation should proceed on the lines of Sir Ralph Littler's Bill, to which, however, they suggest that certain important additions should be made. It cannot be supposed that the proposed measure will operate smoothly or that its provisions will reach all offenders. The utmost that can be hoped for is that it may be able to deal with particularly flagrant cases. The age limit, for one thing, will be certain to give rise to difficulties. In Sir Ralph Littler's Bill it is enacted that the person who sells or delivers cigarettes (the use of this word implies the giving of a cigarette to be an offence) to any child under the age of 16 years shall be liable to a penalty, and further that every child under the age of 16 years who shall be found in possession of cigarettes or found smoking tobacco in any form shall be liable to a similar penalty. It will be admittedly therefore a good defence if the age is proved to be above 16 years but in an addition to the Bill suggested by the committee it is provided that "police constables should be empowered to stop all youths *apparently* under 16 seen smoking in any public place and they should also be allowed to confiscate any tobacco found upon them." We have put the word "apparently" in italics as its retention might lead to distinctly unjustifiable proceedings. There are scores of youths surely who are over 16 years of age and who might even be 18 years of age, who, nevertheless, are "apparently under 16." The same word is used again in a further clause added by the committee which is as follows: "The Act should apply to all children apparently under the age of 16." The use of the word "apparently" in the clauses of any Act in which limits are laid down is calculated to render its successful administration very difficult. We should think that such a word has a too indefinite meaning for employment in a statute. We can, however, well understand the object of using the word; the police and the public are asked to differentiate broadly between "the little nipper"—the undeveloped boy—and the youth who is well on the road to manhood. It would be better therefore, we suggest, if the word "apparently" could be replaced by the word "obviously." It is of no use attempting to differentiate too finely in this matter. Lastly, there will be a difficulty in regard to the suggestion that the juvenile purchaser of tobacco in any form, who is genuinely employed by his father to fetch tobacco for him, should be exempted. If legislation is seriously demanded in this matter and is to be effectual no such exemption can be admitted. No child under a certain age is allowed to be supplied with drink at a public-house for the purpose of carrying that drink to his parents' home and though the associations of the public-house are not comparable with those of tobacco shops, yet for the purposes of the Act there seems to be no difficulty in meeting this provision nor is there any particular hardship forced on anyone. There can be little doubt that smoking in the case of juveniles is an evil and where it exists every endeavour should be made to suppress it, but that this can be effectively done by statute we have little confidence. The youth who smokes is, as a rule, not without a knowledge of the subtle ways of the world and the devices of unprincipled men, and in a great number of cases he will be encouraged to pursue his pernicious habit in a surreptitious manner as soon as the law prevents him from smoking in the present unchecked and open way. He is generally the wicked sort of boy who will likely enough find greater zest in smoking when he realises that he is setting the law at defiance at the same time. In a word, the Juvenile Smoking Bill does not reach the root of the matter. The moral training of the class of small boy who smokes wants considerable strengthening and above all parents should be brought to feel a stronger sense of responsibility in regard to their duties to their offspring than they have shown in the past.

THE DECHLORINATION TREATMENT OF DROPSY.

IN the *Scottish Medical Journal* for February Dr. F. D. Boyd has called attention to the value of the dechlorination treatment of dropsy—a method which we owe to the French and which has had little vogue in this country. Widal pointed out that in renal disease when sodium chloride accumulates in the body œdema results and albuminuria increases. On the other hand, when sodium chloride is withheld from diet the albuminuria diminishes and œdema may disappear. Dr. Boyd relates the following striking example of the value of this treatment. A man, aged 57 years, was admitted into hospital with swelling of the legs, the abdomen, and the hands. For 25 years he had suffered from attacks of bronchitis every winter. Ten years before admission he first noticed swelling of the ankles. In the last four years he had suffered from frequent attacks of dyspnœa and had seldom been free from œdema of the legs. For three months he had been confined to bed. On admission there were bronchitis, general anasarca, ascites, considerable effusion into both pleural cavities, and dilated heart. The radial artery was thickened and the blood pressure was low. The urine was scanty and contained albumin but no formed elements were found. A light diet and one and a half pints of fluid were given in the 24 hours. During the next six days the œdema slightly increased and the arterial pressure rose. Then a salt-free diet, consisting of bread made without salt, meat, fish, and fowl cooked without salt, and potatoes cooked without salt and eaten with fresh butter, was prescribed. The amount of fluid taken was kept at one and a half pints in the 24 hours. On the second day improvement began; the arterial pressure fell, and the quantity of urine more than doubled. Diuresis was maintained until all œdema had disappeared. The intake of chlorides on this diet was about two grammes in the 24 hours. There was an enormous excretion of chlorides which followed closely the excretion of water. The weight of the patient fell from 190 to 132 pounds and in 17 days he became free from the œdema, which had lasted for years. Cryoscopy showed a marked depression of the freezing point of the blood, indicating renal inadequacy. The blood contained 0·58, fluid taken from the legs 0·75, and fluid taken from the chest 0·74 per cent. of sodium chloride. The latter figures are excessive. The amount of chloride in the blood remains fairly constant. When chloride is taken in excess of the excretory powers of the kidneys it accumulates in the tissues and œdema results. When chloride is withheld from the diet the converse occurs: chloride passes into the blood and œdema disappears. Of course, other factors are concerned in the production of dropsy. Yet frequently, even in dropsy resulting from grave cardiac and renal disease, Dr. Boyd has seen œdema disappear on withdrawing salt from the diet when all other means failed.

THE RECOVERY OF RESIDUES FROM BRINE AND THEIR UTILISATION IN THE ROUTINE TREATMENT AT SPAS.

IN an interesting communication which we have received from Mr. F. Bale of Droitwich he points out that at Droitwich and other places in this country where the manufacture of common salt is carried on there have been thrown away for centuries or practically made little use of some of the best constituents of the brine. The ordinary scale which is produced in the evaporating pans together with the mother liquor which contains mineral constituents more soluble than common salt, such as magnesium chloride and sodium sulphate, can be utilised, he states, for the production of excellent mineral waters for drinking and other purposes, thus adding an important detail to the equipment of the health spa. The mother liquor may contain, according to the degree of concentration, as much as 25 per cent. of the sulphates of calcium, magnesium, and sodium. If this mother liquor is diluted with water and "salt scale" is added a mineral water is obtained, effervescing, he says, with oxygen. The disengagement of oxygen is singular and apparently proceeds from the dissolution of the hydrated sulphate of calcium which is the chief constituent of the "salt scale," although no chemical explanation of this production of oxygen gas is forthcoming. The evolution of gas is steady and goes on slowly for days, ultimately saturating the water. We presume that Mr. Bale has satisfied himself that this gas is oxygen as its development is a little difficult to account for. He regards the mineral water so obtained from these concentrated constituents of the brine as approximating in composition to the waters of many celebrated spas, while he attaches an added value to it owing to the surplus of oxygen gas with which it is charged It follows, he thinks, that the districts of this country which possess brine baths may now also possess that which they require as a necessary adjunct to balneotherapy—a medicinal water for drinking. Moreover, a water evolving pure oxygen gas is not likely to contain organic impurities and conceivably oxygenated water may supply a therapeutic need.

THE WILL OF MR. ALFRED BEIT.

THE late Mr. Alfred Beit in his will dated April 18th, 1905, records that he was a naturalised British subject living in England. The provisions of the will show that the testator was a man of broad ideas and one who had the welfare of his fellow men actively at heart. Nor are the bequests tied down by conditions which in after years might become onerous or impossible of execution. For instance, he leaves his estate of Borstler Jäger, near Hamburg, to be held in perpetuity for ever for the benefit of the people of Hamburg and Gros Borstel, intact and unbuilt upon, but should the authorities of the city find this impracticable they may, after 20 years from the date of the testator's death, realise the whole or part of the property and may apply the proceeds to charitable, educational, or public purposes for the benefit of the State of Hamburg. Among other bequests specially interesting to the medical profession are a sum of £20,000 to the Central Institute of Medical Sciences Fund, London University, £20,000 to King Edward's Hospital Fund, and £20,000 to Guy's Hospital. A remarkable bequest which may have a far-reaching influence upon the health of present and future generations in Africa is one of £1,200,000 for methods of transmission, such as railways, telegraphs, and telephones in connexion with the Cape-to-Cairo Railway. It is only necessary to read the record of African travel to see how the formation of a railway will do away with the appalling loss of life which occurred among past travellers, whether among themselves or the carriers of baggage. It is true that the opening, or at least the construction, of a railway through hitherto unopened territory is often accompanied by the spread of such diseases as malaria or yellow fever, but these can be guarded against. But once the railway is opened trade communication is rendered rapid and easy. Altogether the will is a striking example of how the possessors of great wealth may be benefactors of their species.

A YEAR'S WORK IN THE GOVERNMENT LABORATORY.

THE report of the principal chemist (Dr. T. E. Thorpe) upon the work of the Government Laboratory for the year ended March 31st, 1906, was published last week. In the Customs branch of the laboratory the total number of analyses and examinations made during the year was 52,140 as compared with 49,751 in the preceding year, being an increase of 2389. In the Excise branch of the laboratory the number of analyses and examinations made was 106,799. In the preceding year the number was 88,757, so that an increase of over 18,000 occurred, which was due mainly to the large number of samples of offal tobacco submitted to examination in accordance with the regulations under which such tobacco is presented for drawback. The number of samples of food and drugs referred to the Government Laboratory under the Sale of Food and Drugs Act was 101, against 109 last year. In the case of 100 samples so examined the conclusion of the Government analysts differed from those of the public analyst in ten instances (i.e., 10 per cent.). In the previous years the conclusions differed to the extent of 9·5 per cent. and in 1904 to the extent of 14·4 per cent. Public analysts are thus to be congratulated on the generally high standard of their work and Dr. Thorpe has contributed to this result by adopting uniform methods of analysis and making them known. The result is all the more satisfactory when the small number of referred samples is compared with the many thousands usually examined in the public service which are not so referred. It is interesting to note that the Government chemist agreed with the opinion given by an analyst in one case to the effect that a sample of brandy had been mixed with spirit which was not brandy. In the Customs department there was a considerable increase in the number of samples of enumerated spirits examined, due chiefly to spirits being entered as "brandy," the correctness of this description being questioned by the landing officers. In a number of cases the spirits did not correspond with the genuine brandy of commerce and were accordingly charged at the higher rate as unenumerated spirits. It is gratifying to see that at last the Excise authorities are turning their attention to the discrimination of spirits in the way indicated and we may be pardoned for claiming that we are the authors of this reform by our exposure of the adulteration of brandy with foreign spirit. The practice of filling chocolates with a strongly alcoholic liqueur appears to have been abandoned, as out of 44 samples examined a considerable number was practically free from spirit. As regards tobacco, liquorice and glycerine appear to be the chief foreign ingredients added, which agrees with our own statements on the subject. Other substances found were logwood and paraffin wax, neither of which, of course, is poisonous. 19 samples of cigarettes were found to contain percussion caps and in one gunpowder was found. These were doubtless added to assist the combustion of the tobacco but it may be pointed out that nitrate of potassium is frequently a normal constituent of tobacco leaf. There seems to be an increasing importation of "skim-milk" cheese which comes chiefly from Holland. In one instance the cheese contained only 3·3 per cent. of fat. An interesting observation was made in regard to the examination of certain fishes taken from a river which was believed to have received the arsenical drainings from a mine in its vicinity. Arsenic was found to be present in the fish, and in another instance salmon peel taken from a stream at Lostwithiel, and supposed to have been poisoned with copper from mine drainage, were found to contain an appreciable quantity of copper. Altogether the annual reports from the Government Laboratory are invariably full of matters of interest to the nation and the one just issued is no exception.

DIAGNOSIS BY SMELL.

THE very interesting letter from Dr. J. Burton Cleland in our correspondence columns last week[1] gave several examples of diseases and conditions which might reveal themselves to the sense of smell of the medical adviser. He instanced diabetes, enteric fever, acute rheumatism, plague, and retained placenta. The use of the nostrils in practical life is continually being more or less ignored. The mouth-breather forgets that originally the breath of life was breathed into man's nostrils; too often he breathes the breath of death through his mouth, for by the use of that channel he forfeits one of the protective mechanisms with which he has been endowed. Nostril breathers are able to detect at once if any putrescent nidus is in the vicinity and thereupon they will remove it or else themselves. It is notorious that the sense of smell (the "scent") of animals is often highly developed. It is stated that the odour emitted from a small-pox patient will attract cheetahs from afar; flies soon settle on decomposing matter, on tuberculous sputum, and, as was a common experience during the late South African campaign, over the heads of enteric fever patients. A peculiar smell with its associations is vividly recalled when perhaps years later it next reaches the olfactory area. Among other diseases than those above mentioned which can be diagnosed, with more or less certainty, by the sense of smell are abdominal fistula, bronchiectasis, cancers (undressed), some cases of erysipelas, favus (acetamide), some cases of fracture of the skull, gangrene of the lung, ozæna fœtida, hæmorrhoids (bleeding), pyæmia, septic mouth, stillicidium urinæ, and undressed varicose ulcers. The odours of excreta are sometimes a useful aid to diagnosis; thus tuberculous sputum smells like soaked bread. It has been noticed frequently that after conducting a post-mortem examination upon a highly odoured corpse the fæces of the operator will for about two days emit a similar stench. Drugs may reveal themselves in the breath or otherwise and thus give a clue to the malady for which they have been prescribed—thus alcohol, antimony, asafœtida, garlic, and iodoform. Similarly, a man who constantly when in public sucks a cachou or a mint-drop probably has very bad teeth and consequently foul breath. There is one caution which must be heeded—there may be an error in the observer's own nostrils; he may have lost his own sense of smell, as after an attack of influenza or having taken alcohol himself he may fancy he detects its odour in the breath of a person under examination. Finally, it would be useful to know if it is common for a smell to appear as an epileptic aura and if it ever happens that we smell in our dreams.

THE IMPERIAL CANCER RESEARCH FUND.

THE annual meeting of the Imperial Cancer Research Fund was held on July 25th at the Examination Hall of the Royal Colleges on the Embankment. Reports from the executive committee, the general superintendent, and the honorary treasurer were read. It was announced that the difficulty which had arisen with the Post Office concerning the transmission through the post of specimens of cancer had been satisfactorily cleared up in the month of March. The report of Dr. E. F. Bashford, the general superintendent, contained matters of great interest concerning the growth of cancer and the possibility of protecting mice from the consequences of experimental cancer. Dr. Bashford points out that the results of these experiments "only indicate the possibility of rendering normal mice unsuitable for the growth of experimental cancer. They have not enabled us to arrest the progress of experimental tumours, far less to effect the cure of the disease occurring naturally." It is well, we think, that the report should contain these words, for the members of the public at large are only too prone to catch at any straw which may appear to offer a chance of saving themselves from the abyss of cancer. We are beginning to see light on the problem but only a glimmer. We hope to treat the matter contained in the report at greater length in a future issue.

TREATMENT OF DIPHTHERITIC PARALYSIS WITH ANTITOXIN.

THE value of antitoxin in the treatment of diphtheria is now one of the best-established facts of therapeutics. But antitoxin does not appear to be used after the attack for the treatment of the most important sequel—the paralysis. At the meeting of the Société Médicale des Hôpitaux of Paris on June 15th M. J. Comby read an important paper on this use of antitoxin, to which we have previously referred.[1] He first published this treatment in July, 1904, and since that time a number of successful cases have been recorded by himself and other French writers. The following is an example. A man, aged 60 years, contracted a sore-throat for which only local treatment was used. Some days later he noticed a nasal intonation of the voice and regurgitation of fluid through the nose. These symptoms were only ephemeral, but some weeks later he had difficulty in walking and soon he became unable to leave his room. On examination atheromatous arteries, absent knee-jerks, and an aortic systolic murmur were found. Suspecting diphtheria, though entertaining the question of a vascular lesion of the nervous system, four injections, making a total of 80 cubic centimetres of antitoxin, were given in four days. Almost immediate improvement ensued and recovery took place in eight days. In another case a girl, aged 14 years, was admitted into hospital on March 24th last. On Jan. 14th she had a severe sore-throat, with formation of membrane, which was not treated with antitoxin. A short time afterwards the voice became nasal, liquid regurgitated through the nose, and there were strabismus and diplopia. These symptoms lasted only for a short time. A fortnight before admission she had difficulty in walking which increased until the lower limbs were completely paralysed. The upper limbs were affected in less degree. There was also paralysis of the trunk and neck; the child could not sit up in bed or lift the head. The knee-jerks were absent. In a great number of muscles both galvanic and faradic excitability was abolished. On March 25th and 26th two injections of 20 cubic centimetres of Roux's antitoxin were given, and on the 27th, 28th, and 29th three injections of ten cubic centimetres (70 cubic centimetres in all). On the second day of the treatment the patient easily moved her legs. At the end of the treatment she could sit up in bed. After a week recovery was complete except that the knee-jerks were still absent. M. Comby has treated nine cases of diphtheritic paralysis by this method and in all rapid recovery occurred. In most of the cases the paralysis was severe and took a generalised or an ascending form. Previously fatal cases of his cases of late diphtheritic paralysis were several. M. Comby drew the following conclusions. 1. Every case of diphtheritic paralysis, early or late, localised or generalised, should be treated with antitoxin. 2. The injections should be given on several days in succession in doses of from ten to 20 cubic centimetres, according to the age, so that a total quantity of 60 to 80 cubic centimetres of Roux's serum is given. 3. These injections are usually well tolerated and only exceptionally produce any symptoms. 4. Neither the age of the patient nor his previous state of health is a contra-indication. The injections should be given even when antitoxin has been administered in the stage of sore-throat.

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[1] THE LANCET, July 21st, p. [illegible]

[1] THE LANCET, July 7th, 1906, p. 54.

THE COMPLICATIONS OF MUMPS.

AN interesting letter relating to the serious nature of the complications which may be associated with mumps in adults was published in THE LANCET of July 21st by Major F. Smith, R.A.M.C. In an outbreak of that disease among some troops under his charge Major Smith found that five cases out of a total of 11 had more or less serious complications, and he enters a noteworthy plea for the more serious consideration of that disease which is too often regarded as of a trivial character. Although mumps or epidemic parotitis is a highly contagious disease, yet the susceptibility to infection after exposure seems less general than in the case of many other specific contagious diseases; as a consequence, not a few escape infection in childhood, but epidemics from time to time occur in young adults, notably among soldiers or recruits. Several epidemics of this kind with a considerable proportion of serious complications or sequelæ have been recorded by French army surgeons. Moreover, second attacks of the disease, though rare, are by no means unknown and the attacks in these circumstances are often severe, according to Danchez.[1] The severe cases of mumps and those characterised by serious complications occur for the most part in those above the age of 12 years and particularly in adults. The list of complications and troublesome after-effects is a long and formidable one according to recent observations, and these are not necessarily associated with marked local conditions. Indeed, severe local complications are extremely rare. Suppuration in or about the gland is very uncommon and is then doubtless due to a secondary septic infection by way of the ducts of the glands; gangrene of the parotid gland is of even greater rarity. The facial paralysis which appears in some cases is probably due to compression of the facial nerve or to extension of the inflammatory process to its sheath, since it is a rule partial and temporary, recovering without special treatment in from six to ten days. It was observed seven times in 60 cases among young soldiers recorded by Courand and Petges.[2] Suppression of the salivary flow has also been observed to follow mumps.[3] Among the most serious complications are the so-called metastatic inflammations or metastases. These are doubtless due to the further spread and activity of the specific causative agent. The peculiarity of the special liability to infect the genital glands has long been known and orchitis is generally recognised as one of the most serious complications of the disease. It may occur without any parotid inflammation in rare cases and the possibility of this should be borne in mind during the course of an epidemic of the disease. It more usually occurs in the third or fourth week of the disease and lasts for a week or less, being not infrequently followed by rapid atrophy of the testicle affected by it. Comby found that this atrophy occurred in 103 instances among 163 cases of orchitis following mumps. Ovaritis, salpingitis, vulvo-vaginitis with œdema of the vulva, and mastitis occur in female cases, but more rarely. A singular difference between the incidence of the secondary inflammations in the two sexes is that whereas orchitis occurs almost invariably after the age of puberty, the ovaritis, vulvo-vaginitis, and mastitis may occur in young female children. It has been stated that pancreatitis may occur after mumps, and a case has been described[4] in which a boy developed pain in the abdomen on the fourth day with a tender swelling in the epigastrium. Lacrymal mumps has also been described by Hirschberg. Among the complications of the disease those affecting the nervous system demand special notice. High fever associated with delirium may occur in uncomplicated cases, probably from toxæmia, but occasionally signs of meningitis and even of involvement of the brain itself are observed and such signs have occurred in nearly all the fatal cases hitherto recorded. Peripheral neuritis has also been occasionally observed to follow the disease. Major Smith observed marked weakness of the lower limbs in several of his cases. Acute mania was observed in association with the disease by Dr. R. Percy Smith.[5] Of affections of the special senses, one of the most common and serious is deafness which may be due to otitis from spread of inflammation to the middle ear by the Eustachian tube, when it is usually recovered from, or to an actual incurable nerve deafness from affection of the labyrinth or of the nucleus of the auditory nerve. This condition may occur in the second week and may be preceded by tinnitus, vertigo, vomiting, and fever. Optic neuritis followed by atrophy has also been described but it is a sequel of extreme rarity. Other conditions described as occurring in association with mumps are endocarditis, pericarditis, arthritis, nephritis with uræmia, albuminuria, epistaxis, pneumonia, digestive disturbances with jaundice, enlargement of the spleen, and certain skin eruptions. The mildness of the typical disease as it occurs in children and the rapidity with which convalescence follows in uncomplicated cases have served to distract attention from the severe character of some of the associated conditions, and since many of these are more likely to occur after neglect or exposure during the course of the disease it is obviously of great importance that even in mild cases, especially in adults, the utmost care should be taken to treat them seriously and from the first appearance of the symptoms. Major Smith's interesting letter serves a useful purpose in emphasising the importance of the recognition of the serious character of the disease.

THE EMPLOYMENT OF A SPECIAL PATHOLOGIST BY A CORONER.

THE report of the district auditor (Mr. T. Barclay Cockerton) on the accounts of the London County Council for the year 1904–05 was circulated on Monday. The report says: "In the course of the audit the British Medical Association, represented by their counsel, together with other itepayers, appeared before me to object to the allowance of ertain disbursements by Mr. John Troutbeck, one of the oroners of the county. I carefully considered the objections nd on the 11th of January gave my decision that all the ayments objected to were legal and that the Council were ustified in charging them in these accounts. I have been sked to give a statement of my reasons for allowing he payments objected to, which reasons I have duly ntered in the book of account, according to the tatutory requirements. In giving my decision in favour f the Council I expressed my sympathy with the members f the medical profession who were affected by the mode f procedure adopted by Mr. Troutbeck. At the same time I desire to take this opportunity of saying that I am convinced that both the public control committee of the Council nd the coroner have been solely influenced by a desire to scertain effectually the cause of death in cases where nquests are held and to act generally in the public interest. I may say, however, that in my opinion the Coroners Act of 1887, on which the objectors relied, never contemplated the employment of a special pathologist in the manner adopted by Mr. Troutbeck. I would therefore strongly urge the passing of an amending Act in order to remove some of the difficulties in connexion with this matter and I understand that the Council have for the past 11 years been endeavouring to obtain an amendment of the law in this direction." The finance committee of the *London County Council*, to whom the auditor's report was referred, states that the matter in question is receiving consideration

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[1] La France Médicale, July 21st, 1900.

[2] Archiv de Médicine et de Pharmacie Militaire, 1899, p. 185

[3] THE LANCET, June 23rd, 1883, p. 1087.

[4] H. W. Jacob: Brit. Med. Jour., June 23rd, 1900, p. 1532.

[5] THE LANCET, August 10th, 1889, p. 265.

PROMOTION OF AGRICULTURAL RESEARCH.

AN interesting letter written by Professor H. E. Armstrong, F.R.S., has recently been published in the *Times* on this subject, from which it would appear that there is a limit to the useful application of artificial manures or, to use a better term, fertilisers. We can quite believe it, and that these essential aids to agriculture are misused has long been our opinion. It should be remembered that a soil can be just as easily made sick of a special manure as of a special crop. In other words, we consider that the old plan of rotations should not be overlooked in dealing with the cultivation of experimental plots and that continually to grow the same crop year after year, no matter how careful the manuring, is flagrantly to violate the laws of nature and to court a breakdown. There should also be more analyses of the soil; the various so-called non-essential ingredients may be wanting and may suddenly assume vital importance One reason why manures sometimes fail in the hands of the ordinary farmer is that they are applied with most callous indifference to the state and the requirements of the soil. The golden rule is to supply the deficiency. The ordinary farmer should first see if the soil is properly limed; the simple test—effervescence with hydrochloric acid—as suggested by Dr. B. Dyer, who has done so much for scientific agriculture, should be tried. Superphosphate is acid and should not be applied to an acid soil. Hundreds of pounds are spent on improvements on farms, yet how few farmers can tell the reaction of their soil and its simple analysis. Manure is dumped where it can do nothing but outrage nature, and of all dumping the dumping of artificial manure is the worst It is desirable, we think, that manufacturers should state the reaction to, say, methyl orange clearly in their invoices This omission of stating the acidity has been much against them, as it has led to improper use of fertilisers. To receive an acid manure properly the soil must be alkaline; this is the keynote to successful application. The invent[illegible] of the late Sir John Lawes was of the most valuable kin[illegible] agriculture. The Government should surely take over, amplify, and extend its experiments, which thus strengthened would confer fresh benefits not only on England but on the whole human race.

THE FACTORY GIRLS' COUNTRY HOLIDAY FUND.

WE have received an appeal on behalf of this fund signed by, amongst others, the Duke of Norfolk, the Bishop of Southwark, the Bishop of Stepney, Dr. Adler the Chief Rabbi, Canon Scott Holland, and the Rev. Dr. R. F. Horton. These names alone are sufficient to show the non-sectarian nature of the fund while we have on many occasions pointed out the wisdom of providing for poor factory girls a holiday in the country. From whatever standpoint we may view this fund, be it that of charity, public health, or the future well-being of the race, there can be but one conclusion—namely, that it is well deserving of support. Already 5000 applications have been received from work-girls or those representing them and 1500 of these have been dealt with. The organisers of the fund as far as possible require the applicants to help themselves and they do so by saving up their pence week by week. In this way they provide on an average about a quarter of the sum required; last year their contributions amounted to £1200. The committee points out that these girls and women work for long hours day after day, live in small and crowded tenements, and earn for the most part from 4*s.* to 12*s.* a week. The holiday is looked forward to by them for months in advance; *it is looked back upon and talked about for months* afterwards It often happens that a girl who has herself enjoyed the benefit of a holiday in former years in her anxiety to get a holiday for a sister or a friend is prepared to sacrifice her own, for, as her people say, she comes back looking and feeling quite a different being, built up, and ready to resume cheerfully her work and troubles until holiday time comes round once more. The committee has received 1000 more applications than usual and it is reluctantly compelled to refuse fresh ones until those already sent in have been dealt with. Subscriptions should be sent to the honorary secretary, St. Peter's Rectory, Saffron-hill, London, E C.

THE ADMISSION OF CASES OF TYPHOID FEVER INTO GENERAL HOSPITALS.

FROM time to time the question of the admission of cases of typhoid fever into the wards of general hospitals comes up for discussion. The tendency has been to treat cases of specific infectious disease in isolation hospitals and many cases of typhoid fever have been transferred to such institutions for treatment. In most, if not all, of the large general hospitals in London, however, cases of that disease are admitted, sometimes into special wards but more frequently into the general wards. Since the infective agent causing the disease is known and the modes of infection are now generally recognised, there can be little doubt that given satisfactory sanitary arrangements and skilled nursing there is no danger of the spread of the disease by such admissions and from many points of view it would be a matter for regret if cases of typhoid fever were excluded from general hospitals. It is eminently desirable that both medical practitioners and nurses should be familiar with the disease, its treatment, and the prophylactic measures necessary to prevent its spread, and for this purpose a closer association with actual cases is necessary than is likely to be obtained by the ordinary course of instruction at special hospitals.

THE Department of Public Health of Queensland states, in a bulletin dated June 16th for the week ending that day, that a mild case of bubonic plague occurred on June 9th. The patient was a male employed as a porter at Roma-street railway-station, Brisbane, and at the date of the bulletin was convalescent. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on July 23rd states that for the week ending July 21st there were 7 cases of plague and 5 deaths from the disease.

THE death is announced, at the age of 69 years, of our eminent French *confrère*, Dr. Brouardel, who has for many years been professor of legal medicine at the University of Paris. Dr. Brouardel was also an authority upon practical hygiene and a prolific medical author. We hope to give some details of his life and work in an early issue.

THE annual dinner of the old students of St. Thomas's Hospital will take place on Tuesday, Oct. 2nd, at the Hotel Cecil, London, at 7 for 7.30 P.M. Dr. Arthur Newsholme, medical officer of health of Brighton, will be in the chair.

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Mr. Charles Alfred Ballance, M.B., M.S. Lond., F.R.C.S. Eng., has been appointed a member of the Royal Victorian Order of the Fourth Class.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

NEW HISTORICAL SUMMARY.

THE recently prepared Historical Summary of the Royal College of Surgeons is of special interest as being the first account of the corporate life of the College. It is worthy of note that the College centenary in 1900 led many to think that the College of Surgeons as an institution was only 100 years old, whereas the corporate lineage of the College could be traced back for nearly six centuries. The summary, of which the following is an extract, has been prepared by the ex-President, Mr. John Tweedy, F.R.C.S., and Mr. S. Forrest Cowell, the secretary.

The early history of the Royal College of Surgeons of England is the history of two companies which, existing at first as separate fraternities or guilds, were for a time united into one body corporate, and finally became resolved again into two distinct corporations. One of these, the Barbers' Company of London, is first definitely mentioned in the records preserved at the Guildhall in the year 1308, when Richard le Barber was presented and sworn before the court of aldermen as Master and Supervisor of the Barbers' Guild; and from an ordinance of the City made in the previous year it is evident that the barbers of London were at that time engaged in the practice of at least some branches of surgery. The other company, known as the Fellowship or Guild of Surgeons, is mentioned in the City records in the year 1369.

Between these two bodies there was for many years a keen rivalry and jealousy. Each tried by turns to attain supremacy of authority and jurisdiction in matters relating to the practice of surgery. In the year 1376 the barbers made a complaint to the mayor and aldermen against unskilled practitioners in surgery, and obtained an ordinance providing that two masters should be appointed annually to direct and rule the craft, to inspect instruments, and to see that none should be admitted to the franchise of the City except after attestation of their skill by good examination. 14 years later, however, four masters of the surgeons' guild were sworn before the court of aldermen and they were invested with the power of scrutiny among persons practising surgery and with authority to present defaults. But in the year 1410 the barbers obtained from the court of aldermen confirmation of the privileges granted to them in 1376 with the addition that they should be enjoyed "without the scrutiny of any person or persons of any other craft or trade under any name whatsoever other than the craft or trade of the said Barbers."

The Barbers' Company was by this time assuming a two-fold character, for it consisted of two classes of members—those who were barbers simply or practised only the minor branches of surgery, such as blood-letting and tooth-drawing, and those who exercised the faculty of surgery. In the year 1415 the mayor and aldermen required the company to furnish them with a list of all the latter class of members, from which they selected two as masters of those practising surgery, leaving to the company itself the election of the masters of the barbers. Meanwhile the Guild of Surgeons sought an alliance with the physicians. About the year 1423 they obtained an ordinance from the court of aldermen having for its object an association or commonalty of physicians and surgeons. Fortified by the support of the physicians the surgeons once more challenged the surgical privileges of the barbers but these were again confirmed by the mayor and aldermen in 1424. The scheme for a combination of physicians and surgeons fell through but the surgeons continued a separate body with ordinances for the government of their Society.

Freed from opposition the Barbers' Company continued to grow in importance and in the year 1462 the right of its members to practise surgery was definitely established by Letters Patent granted by Edward IV. in the first year of his reign. This charter, from which the Royal College of Surgeons of England, as recited in the charter of 1800, dates its constitutional history as a body corporate, was granted to the freemen of the mystery of barbers of the City of London practising surgery. They were made one body and perpetual community with a common seal and with power to hold lands and to make by-laws.

In the year 1493 the Guild of Surgeons, which had continued as a separate body, entered into an alliance or "composition" with the Barbers' Company, by which the two companies agreed each to appoint two wardens, the four so appointed to act together in all matters relating to surgery and to the examination and government of its practitioners. The charter granted by Edward IV. to the Barbers' Company was confirmed by Henry VII. and also by Henry VIII., but in 1511 an Act (3 Henry VIII., cap. 11) was passed, constituting a further licensing authority by enacting that no person should practise as a physician or surgeon in London, or within seven miles of the same, unless first examined and approved by the Bishop of London, or the Dean of St. Paul's, with the assistance of four physicians or surgeons. In the year 1540 the two companies were formally united by Act of Parliament. The Act (32 Henry VIII., cap. 42), after reciting that there were two distinct companies of surgeons in London, one called the Barbers of London and the other the Surgeons of London, enacted that the two companies should from thenceforth be united and made one body corporate to be called by the name of the Masters or Governors of the Mystery of the Commonalty of the Barbers and Surgeons of London. The united company was to enjoy all the rights and privileges at any time granted to the two separate companies. Four masters, two to be surgeons and two to be barbers, were to be appointed annually; barbers were forbidden to perform any surgical operations except the drawing of teeth and surgeons were not to exercise the craft of barbery and shaving. Provision was also made for the study of anatomy by giving the company the right to claim four bodies annually of persons executed for felony. Thomas Vicary, Serjeant-Surgeon to Henry VIII. and afterwards to Mary and to Elizabeth, was elected the first master. The united company shared the possession of Barbers' Hall, which is known to have occupied its present site in Monkwell-street since 1490, and was probably there even before that. The hall, subsequently added to by Inigo Jones in 1636, is still standing, having escaped destruction in the Great Fire of London.

The union thus effected was destined to last for more than 200 years. At first, however, the privileges conferred on the surgeons of the company appear to have excited opposition, for in the thirty-fourth and thirty-fifth years of Henry VIII. an Act was passed allowing unlicensed persons to treat outward sores and swellings with herbs and ointments.

During the reign of Queen Mary, in the year 1555, regulations were drawn up relating to the examination of persons for the company's licence to practise. These regulations provided for the appointment of 13 examiners, including the master and two governors. This is the origin of the present court of examiners of the Royal College of Surgeons.

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36 bronze medals, was announced by Mr. H. D. Searle-Wood, chairman of the committee of judges, which included Dr. Philip Boobbyer, Colonel J. Lane Notter, R.A.M.C. (retired), Dr. Louis C. Parkes, and Dr. George Reid.

The exhibits were divided into sections dealing with all branches of sanitation. In Division A (Science in Relation to Hygiene) Mr. George Blissett, 71, Brookwood-road, Southfields, London, S.W., exhibited a wide range of optical instruments and appliances, including a collection of ancient spectacles and spectacles for ordinary and special purposes. Mr. Joseph W. Lovibond, The Laboratories, Salisbury, showed apparatus for establishing the colours of healthy and abnormal bloods and for showing their deviation by a system of curves. An apparatus for measuring the colour of potable and contaminated water and effluents also attracted attention. In Division B (Hygiene of Special Classes, Trades, and Professions) Messrs. Wilson and Stockall, Bury, Lancashire, gave prominence to ambulance vehicles, including a patent brougham ambulance, fitted with a stretcher and two seats, one for a sitting patient, the other for an attendant, and specially designed for easy disinfection. They also showed a motor ambulance, mounted on a 12–14 h.p. chassis, containing two stretchers, one above the other, and two seats for attendants. The compactness of the design enables the vehicle to be used in the narrow streets of large towns. Messrs. Pocock Brothers, 235, Southwark Bridge-road, London, S.E., gained a silver medal for a completely equipped indiarubber padded room, of full size, fitted with a drainage gully and all known modern appliances. A large number of excellent coloured charts, designed for the teaching of young children, by Messrs. E. J. Arnold and Son, Limited, publishers, Butterley-street, Hunslet-lane, Leeds, gained considerable notice. For example, a set of eight charts on physiology dealt with the elementary principles of physiology, hygiene, and first aid; a large chart gave practical hints on fresh air and light, food and drink, warmth and clothing, bathing, rest and exercise, and various household matters; while another chart indicated the best and safest things to do in an emergency in cases of simple injuries and ailments. The exhibit of Messrs. Monat and Company, 8, St. Paul-street, Portland-square, Bristol, consisted of a safety mail-cart for children, so designed that when the attendant's hands are removed from the shafts a brake is automatically set in action. The cart was fitted in addition with a novel safety belt for securing a child while allowing it sufficient freedom of movement.

In Division C (Construction and Sanitary Apparatus) reference may be made to the sewage distributors of Mr. George Percival Milnes, 6, Rowcroft, Stroud, Gloucestershire; Messrs. H. Birch, Killon, and Co., 20, Cooper street, Manchester; and Messrs. W. Harriman and Co., Limited, 1, Charlotte-square, Newcastle-on-Tyne. Improved hospital lavatories were shown by Mr. John Jones, Carlyle Works, Chelsea, S.W.; Messrs. Doulton and Co., Albert Embankment, London, S.E.; and Messrs. Shanks and Co., Limited, Barrhead, Glasgow. Messrs. George Howson and Sons, Limited, Hanley, Staffs, included types of lavatories suitable for use in operating theatres, with a lever apparatus to operate the taps and a knee lever to operate the waste. Other forms of operating theatre lavatories were shown by Messrs. Doulton and Co., together with a fireclay mortuary slab and an oblong sink for operating rooms, fitted with an aseptic filter and irrigators, and a mixing valve for hot and cold water over the sink, with spray and jet nozzles. Messrs. Pountney and Co., Limited, Fishponds, Bristol, made a feature of semi-porcelain lavatory basins that will not craze, a point of importance in hospital fittings. Much interest was taken in the appliances for the prevention of smoke, of which the exhibit of the British Fuel Economiser and Smoke Preventer Co., 9, Bedford-row, London, W.C., was prominent. Ozonair, Limited, 27, Chancery-lane, London, W.C., showed in operation types of apparatus for the commercial production of ozone which is claimed to be free from oxides of nitrogen. The B.V. type is intended for purifying the atmosphere in hospitals and other buildings and the P.M. type is designed for medical use in the treatment of diseases of the skin and other complaints. Other types are made for the bleaching of foods—e.g., treacle, sugar, and flour, also fabrics, and for the maturing of tobacco and whisky. The makers of the apparatus claim that it is possible in an hour to mature whisky by means of ozone to the same extent as is usually attained by years of storage. One of the most novel exhibits was a window fitted with a collapsible ventilator for producing efficient ventilation without draught exhibited by the Combination Collapsible Ventilator Co., 85, Duke-street, Liverpool. Among the numerous stoves on view was the D. O. Boyd's "Hygiastic" Warm Air Ventilating Grate, made by Messrs. Hendry and Pattisson, Lavender hill, London, S.W.; it was tested on behalf of the Smoke Abatement Society and lettered A in the report on Test of Certain Open Domestic Grates published in THE LANCET of May 19th, p. 1413. Mr. E. G. Wright, 44, Woodbridge road, Guildford, Surrey, showed a hot-air system for bringing warm air into rooms in winter and cold air in summer without producing draughts.

In Division D (Personal and Domestic Hygiene) Messrs. J. S. Fry and Sons, Limited, Union-street, Bristol, exhibited their malted cocoa, a combination of Fry's pure cocoa extract with Allen and Hanbury's extract of malt. Messrs. Cadbury Bros., Limited, Bourneville, near Birmingham, exhibited their well-known cocoas.

QUACKS AND ABORTIFACIENTS.

AT the recent Nottingham Assizes, before Mr. Justice Walton and a jury, the case of Rex v. Seagrave (*alias* Wardle), where the accused was charged with the sale of diachylon as an abortifacient, resulted in a conviction of the prisoner in circumstances that will be of interest to our readers.

The attention of the medical profession in and around Nottingham has been directed for some time to the increasing use of diachylon as an abortifacient among the working classes. Since the passing of the Midwives Act, moreover, inquiries have been systematically made in the city of Nottingham with regard to cases of still-birth and abortion notified to the local authority under the Act, and in many instances there has been a strong suspicion that lead pills had been taken for the purpose of procuring abortion. Special attention was given to Bulwell, an outlying part of Nottingham, as the reports received from that place showed that the practice was very common there. Cases of lead poisoning, exclusively confined to women of child-bearing age, were stated to be of continual occurrence in this suburb. The pills used in Bulwell were commonly spoken of as "Mrs. Seagrave's pills" and this Mrs. Seagrave (*alias* Wardle) was said to do quite an extensive trade in them, selling them to both married and unmarried women. About ten recent cases were cited in which there was a definite history of lead poisoning and abortion and the corporation authorities considered that an attempt should be made to obtain some of the pills for analysis, so that if possible legal proceedings might be taken against Mrs. Wardle. A box of pills was procured by an agent of the health department and these were found on analysis to consist of diachylon (from 50 to 70 per cent.) and aloes, with an outer coating of boric acid. They were roughly made and varied in size from one and a half grains to five grains. The case was now handed over to the police who arrested Mrs. Wardle and searched her house, where a large quantity of pills similar in composition to those which had been analysed were found and also the implements and materials used in making them. The prisoner was brought before the magistrate and three witnesses were produced who had bought pills from her and had been seriously ill after taking them. Medical evidence was adduced to show that in each case these women had aborted and had suffered from lead poisoning. On the evidence given the magistrates committed the prisoner to the assizes, the defence being reserved.

The case was heard at the Nottingham Assizes on July 17th and 18th, the prisoner being indicted on four charges of supplying pills "containing a certain poison called lead, with intent to procure abortion." As before, the prosecution called witnesses to prove the purchase of the pills from Mrs. Wardle and the ill effects produced by taking them. The medical men who had attended these witnesses again gave evidence that lead poisoning and abortion had occurred in each case. The city analyst described the result of his analysis of the pills and the medical officer of health corroborated this and also spoke at length as to the serious results that would follow the taking of such pills for any considerable period. The women who had purchased pills all stated that Mrs. Wardle had instructed them to take a dose of Epsom but they have not been successful as a rule unless gross negligence was proved. It may perhaps be of some interest to refer to a few. In Lanphier *v.* Phipos (8 Car. & P. 475) it was said that every person who enters into a learned profession undertakes to bring to the exercise of it a reasonable degree of care and skill; he does not, if he is an attorney, undertake at all events to gain the cause; nor does a surgeon undertake that he will perform a cure; nor does the latter undertake to use the highest possible degree of skill, as there may be persons of higher education and greater advantages than himself, but he undertakes to bring a fair, reasonable, and competent degree of skill; and in an action against him by a patient the question for the jury is whether the injury complained of must be referred to the want of a proper degree of skill and care in the defendant or not. In Pimm *v.* Roper (2 F. & F. 783) a surgeon having been employed by a railway company to examine a passenger who had sustained an injury in a collision on their line, and the surgeon having so far as he could see or judge, on the plaintiff's own statement of his injuries, told him that they were so slight that he (the plaintiff) accepted a small sum in compensation, it was held, even assuming that his injuries were greater, there was no ground of action. In an action by a person who had been a patient at a hospital for maltreatment there by two of the surgeons, it appeared that the alleged maltreatment was in the administration of a hot bath which they had ordered, but which it was no part of their ordinary duty personally to direct and to superintend and at the actual administration of which they were not present, it was held in Perionowsky *v.* Freeman (4 F. & F. 977) that the plaintiff was not entitled to expect more than the usual and ordinary degree of care and attention at the hands of the surgeons and that if they were not personally cognisant of the alleged ill-usage they were not liable. To render a medical man liable for negligence or want of due care or skill it is not enough that there has been a less degree of skill than some other medical man might have shown or a less degree of care than even he himself might have bestowed, nor is it enough that he himself acknowledged some degree of want of care; there must have been a want of competent and ordinary care and skill and to such a degree as to have led to a bad result (Rich *v.* Pierpont, 3 F. & F. 35). But every medical practitioner who by a culpable want of attention and care or by the absence of a competent degree of skill and knowledge causes injury to a patient is liable to a civil action for damages unless such injury be the immediate result of intervening negligence on the part of the patient himself or unless such patient has, by his own carelessness, directly conduced to such injury. In Slater *v.* Baker and Stapleton (2 Wils. 359) the plaintiff employed the defendants, the first-named being a surgeon and the second an apothecary, to cure his leg, which had been broken and set, and the callus of the fracture formed. The defendants *disunited the callus* and Baker fixed on to the plaintiff's leg a heavy steel instrument with teeth to stretch or to lengthen the leg. In a special action upon the case against the defendants the plaintiff recovered £500 damages against them jointly; and in answer to an objection that the action ought to have been trespass *vi et armis* for breaking the plaintiff's leg without his consent the court replied: "It appears from the evidence of the surgeons that it was improper to disunite the callus without consent. This is the usage and law of surgeons. Then it was ignorance and unskilfulness in that very particular to do, contrary to the rule of the profession, what no surgeon ought to have done; and, indeed, it is reasonable that a patient should be told what is about to be done to him, that he may take courage and put himself in such a situation as to enable him to undergo the operation. For anything that appears to the court, this was the first experiment made with this new instrument; and if it was, it was a rash action, and he who acts rashly acts ignorantly; and although the defendants, in general, may be as skilful in their respective professions as any two gentlemen in England, yet the court cannot help saying that, in this particular case, they acted ignorantly and unskilfully, contrary to the known rule and usage of surgeons." A medical man is liable to a civil action for injury resulting to a patient from his negligence or unskilful treatment, although the patient neither employed nor was to pay him. Thus in Longmeid *v.* Holliday (6 Exch. 767), Baron Parke said: "If an apothecary administers improper medicines to his patient, or a surgeon unskilfully treats him, and thereby injures his health, he will be liable to the patient, even where the father or friend of the patient may have been the contracting party with the apothecary or surgeon; for, though no such contract had been made, the apothecary, if he gave improper medicines, or the surgeon, if he took him as a patient and unskilfully treated him, would be liable to an action for a misfeasance"; and in Pappin *v.* Sheppard (5 Bing. N. C. 733), which was an action by a man and his wife against a surgeon for an injury to the wife by reason of the defendant's improper and unskilful treatment, Chief Baron Richards said: "From the necessity of the thing the only person who can properly sustain an action for damages for an injury done to the person of a patient is the patient himself, for damages could not be given on that account to any other person, although the surgeon may have been retained and employed by him to undertake the cure"; and in the same case Baron Garrow said: "In cases of the most brutal inattention and neglect the patients would be precluded frequently from seeking damages by course of law, if it were necessary to enable them to recover that there should have been a previous retainer on their part of the person professing to be able to cure them. In all cases of surgeons retained by any of the public establishments it would happen that the patient would be without redress, for it could hardly be expected that the governors of an infirmary should bring an action against the surgeon employed by them to attend the child of poor parents who may have suffered from his negligence and inattention."

Boric Acid added as a Preservative to Potted Meats.

A firm of provision merchants holding large contracts for the supply of provisions to army canteens was summoned recently at the Brentford police-court under the Sale of Food and Drugs Act for selling certain tinned meats which were not of the nature and quality of the articles demanded. The articles in respect of which the summons was taken out consisted of chicken and tongue, chicken and ham, and ham contained in tins the price of which was 1*d.* each and the adulteration complained of consisted of the addition of boric acid as a preservative in a proportion equivalent to 52 grains of borax per pound. There was also evidence that colouring matter in the form of oxide of iron had been used. After a considerable amount of expert evidence had been given on both sides the bench held unanimously that there must be a conviction on the ground that the article sold was rendered injurious by the addition of boric acid in the proportion proved, pointing out that it had been admitted by a witness called for the defence that the preservative might injure a child or a person not in robust health, although it might have no effect upon a healthy adult. A fine of £5, with 50 guineas costs, was imposed. In this case the evidence of the prosecution was not directed to showing any general or certain danger arising out of the presence of boric acid but was confined to the points that in the case of sound meats preserved by being "tinned" it was quite unnecessary and that its effect might be prejudicial to the consumer according to the amount consumed and other circumstances. It was also pointed out that although it was not suggested that the meat forming the subject matter of the prosecution was unsound, and although boric acid would not act as a deodoriser, the preservative might act so as to arrest incipient decomposition without averting the effects of that which had already taken place and also that the summons was not taken out in respect of potted meat which would be kept after the tin was opened but in respect of small tins costing a penny each which would be consumed at once. The suggestion put to a witness that borax might be used medicinally was met with the natural answer that this would not make it desirable to administer it indiscriminately in food. The evidence called for the defence was to the effect that borax was generally used as a preservative, particularly in the case of ham, which it was suggested was due to the modern demand for hams "mildly" cured and was more particularly called for the purpose of establishing the general want of proof of ill-effects arising from its use. The conclusion to which the case points would seem to be that the use of boric acid as a preservative should be discouraged in every possible manner, not on account of any serious danger necessarily arising in all cases where it is employed, but on account of the difficulty of allowing its use in moderation and of, at the same time, detecting and punishing its abuse when added in excessive quantities and for an illicit object.

order to prevent the spread of infection she nevertheless disregarded the notice and attended a confinement as a midwife.

The Board directed the name of this midwife to be removed from the roll.

THE AUSTRIAN EXHIBITION AT EARL'S COURT.

SOME years have elapsed since there has been so serious an exhibition at Earl's Court. There was a danger that these annual exhibitions would degenerate into mere out-of-door entertainments, where bands, the Big Wheel, the water-chutes, the gardens, and various side shows would constitute the chief attractions. This year, however, we have, for the first time, an Austrian exhibition and both public bodies and private enterprise of that country have really endeavoured worthily to be represented. As a result the exhibition constitutes quite an object lesson in regard to the resources of the empire. The heavier industries—coal mining, ironworks, leather dressing, cotton and wool, &c.—are, it is true, scarcely represented. It is mainly the Austria of the tourist that we see; and this includes those who travel not merely for pleasure but for health. There is, indeed, quite an important section devoted to the great Austrian balneological stations This will be found on the right-hand side of the Royal Galleries if entered from the Brompton or the Tyrolese Village side, close to the colonnade that surrounds the oval known as the Royal Galleries, in a quiet inner compartment. Here these exhibits can be studied at ease. At one end there is an oil painting of Abbazia. It shows the beautiful position occupied by this celebrated resort of the Adriatic Riviera. Close at hand, on a large stand, an extensive display of bottles and pamphlets are intended to convey some idea of the benefits to be derived from the arsenious iron baths of Levico-Vetriolo. These are valleys 1600 feet and 3000 feet respectively above the level of the sea and situated near Trent in the South Tyrol. The railway journey from London takes 38 hours and the spring and autumn are the favourite seasons. The waters are rich in proto-sulphate of iron and of arsenious acid, and there is also a summer bathing establishment, for the waters are used externally and internally.

The advantage and it is a very great advantage, of this section of the exhibition is that every detail of needful information can be obtained concerning the various health resorts. For instance, in regard to most resorts we can ascertain not only the composition of the waters and the diseases for which they are employed but the charges made for the baths, the different forms of treatment, and for the Kurtax, and what sports, concerts, and entertainments are provided in return for this tax. Here, likewise, a large number of photographs can be seen. There is notably a very fine photograph of Meran, while albums provide views of the details of the baths and their organisation. There are statistics also, and thus we learn, for instance, that 30,000 visitors annually frequent the sulphur baths of Baden, near Vienna. But in autumn this method of treatment may be varied with "the grape cure," which agreeable *régime* doubtless attracts many persons. Then the hotels are organised so that the food of the residents may be in accordance with the directions laid down by the medical attendants.

Close at hand are the exhibits of the Teplitz-Schönau warm alkaline-saline spas situated above the Adriatic in North-West Bohemia. Here also are mud baths and the chemical composition of the mud is given. There are several pages of printed matter setting forth the rules and regulations in regard to the hiring of lodgings or apartments. This is very useful in preventing misunderstandings and possible disputes. Franzensbad has a large stall and it boasts of "the best moor baths in the world." Large glass vases contain specimens of this mud. Indeed, there is quite an extensive display of rival muds and peat in this section. Samples of mud are pressed upon the visitor as if mud was a highly valuable article to be studied and only truly appreciated by the well-educated connoisseur. The corporation of Franzensbad purchased in 1893 and in 1904 the springs, parks, and moor grounds, so that all the means of treatment should be placed under a uniform town administration. The modern methods and apparatus have been introduced but there is no wasteful competition between rival local establishments. An elaborate illustrated volume gives full details concerning the various springs and resources of the place. There are alkaline springs, chalybeate and steel springs, and one of the iron waters also contains lithia. Altogether there are 12 mineral springs and thus a great variety of diseases are treated there and of late many cases of heart disease have derived benefit at this station. Franzensbad is in Bohemia. It stands 1500 feet above the sea level and *viâ* Ostend can be reached from London in 22 hours. The exhibit at Earl's Court gives a very thorough indication of the resources of this station. The same may be said in regard to the world-famed resorts of Marienbad and Carlsbad. Every conceivable detail and necessary information can be obtained here. The physician or the patient, instead of writing long explanatory letters to one of these health stations, need only go to Earl's Court. Also there may be some hesitation, more detailed knowledge may be desirable, either in regard to the chemical composition of the waters, the sort of baths given, the style and cost of life, and the resources for exercise or amusement. All this cannot so readily be obtained by correspondence and one station compared with other stations. But at Earl's Court nothing is easier. Ample literature in English with maps and views are supplied gratuitously. Any medical practitioner can also have samples of the waters, or salts, or peat, or mud, for examination here in London. Therefore before recommending a patient to proceed to any one of these stations, his medical adviser has now within easy reach all the necessary information. Certainly this section of the exhibition has been well and thoroughly organised and medical men will do well to profit by this opportunity of securing practical information that cannot fail to be of use.

Other parts of Earl's Court illustrate the attractions of Austria, but especially of the Tyrol, for the general holiday seeker and tourist. Walking expeditions in the Tyrol are very practical and inexpensive. Much beautiful scenery and bracing exercise can be enjoyed. The Bohemian and Dalmatian sections are well calculated to inspire the tourist and the traveller with the desire to visit those romantic mountainous portions of the Austrian Empire.

MEDICINE AND THE LAW.

Action for Alleged Negligence against Medical Men.

THE case of Crier and Wife *v.* Hope and Currie which came last week before the Court of Appeal was an important case as to the liability of medical men. The action was brought by a gentleman and his wife to recover damages in consequence of the latter having contracted scarlet fever while being attended by the defendant, Dr. G. B. Currie, in her confinement, and it was alleged that the medical man was negligent in carrying the infection to her. The questions were, whether due and reasonable care had been taken by Dr. Currie and whether the mischief caused to the wife was due to any want of reasonable care on his part. The summing-up of Mr. Justice A. T. Lawrence in the court below was a most careful one and he told the jury over and over again that Dr. Currie undertook to use due and reasonable care and skill. At the trial a verdict and judgment were entered for the defendants, the jury finding that Dr. Currie had taken the usual precautions. Dr. Currie was defended throughout the case by the London and Counties Medical Protection Society. It was argued for the plaintiffs that the jury meant to find that Dr. Currie, though taking the usual precautions, did something short of taking reasonable precautions, or at all events that there was no finding that he took reasonable precautions. The Master of the Rolls, in the course of his judgment, said: "The case lay in a nutshell, whether it was put upon contract or upon the implied duty of a medical man to his patients. In each case the duty was the same. As to the point of an alleged technical assault, which could at most only result in nominal damages and could, therefore, only affect the costs, it was sufficient to say that the case at the trial was conducted without reference to that point and it was only after verdict that it was raised. That was too late. The verdict and judgment must therefore stand." There have been several actions at different times against medical men for alleged negligence, but they have not been successful as a rule unless gross negligence was proved. It may perhaps be of some interest to refer to a few. In Lanphier v. Phipps (8 Car. & P. 475) it was said that every person who enters into a learned profession undertakes to bring to the exercise of it a reasonable degree of care and skill; he does not, if he is an attorney, undertake at all events to gain the cause; nor does a surgeon undertake that he will perform a cure; nor does the latter undertake to use the highest possible degree of skill, as there may be persons of higher education and greater advantages than himself, but he undertakes to bring a fair, reasonable, and competent degree of skill; and in an action against him by a patient the question for the jury is whether the injury complained of must be referred to the want of a proper degree of skill and care in the defendant or not. In Pimm v. 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The Board directed the name of this midwife to be removed from the roll.

THE AUSTRIAN EXHIBITION AT EARL'S COURT.

SOME years have elapsed since there has been so serious an exhibition at Earl's Court. There was a danger that these annual exhibitions would degenerate into mere out-of-door entertainments, where bands, the Big Wheel, the water-chutes, the gardens, and various side shows would constitute the chief attractions. This year, however, we have, for the first time, an Austrian exhibition and both public bodies and private enterprise of that country have really endeavoured worthily to be represented. As a result the exhibition constitutes quite an object lesson in regard to the resources of the empire. The heavier industries—coal mining, ironworks, leather dressing, cotton and wool, &c.—are, it is true, scarcely represented. It is mainly the Austria of the tourist that we see; and this includes those who travel not merely for pleasure but for health. There is, indeed, quite an important section devoted to the great Austrian balneological stations This will be found on the right-hand side of the Royal Galleries if entered from the Brompton or the Tyrolese Village side, close to the colonnade that surrounds the oval known as the Royal Galleries, in a quiet inner compartment. Here these exhibits can be studied at ease. At one end there is an oil painting of Abbazia. It shows the beautiful position occupied by this celebrated resort of the Adriatic Riviera. Close at hand, on a large stand, an extensive display of bottles and pamphlets are intended to convey some idea of the benefits to be derived from the arsenious iron baths of Levico-Vetriolo. These are valleys 1600 feet and 3000 feet respectively above the level of the sea and situated near Trent in the South Tyrol. The railway journey from London takes 38 hours and the spring and autumn are the favourite seasons. The waters are rich in proto-sulphate of iron and of arsenious acid, and there is also a summer bathing establishment, for the waters are used externally and internally.

The advantage, and it is a very great advantage, of this section of the exhibition is that every detail of needful information can be obtained concerning the various health resorts. For instance, in regard to most resorts we can ascertain not only the composition of the waters and the diseases for which they are employed but the charges made for the baths, the different forms of treatment, and for the Kurtax, and what sports, concerts, and entertainments are provided in return for this tax. Here, likewise, a large number of photographs can be seen. There is notably a very fine photograph of Meran, while albums provide views of the details of the baths and their organisation. There are statistics also, and thus we learn, for instance, that 30,000 visitors annually frequent the sulphur baths of Baden, near Vienna. But in autumn this method of treatment may be varied with "the grape cure," which agreeable *régime* doubtless attracts many persons. Then the hotels are organised so that the food of the residents may be in accordance with the directions laid down by the medical attendants.

Close at hand are the exhibits of the Teplitz-Schönau warm alkaline-saline spas situated above the Adriatic in North-West Bohemia. Here also are mud baths and the chemical composition of the mud is given. There are several pages of printed matter setting forth the rules and regulations in regard to the hiring of lodgings or apartments. This is very useful in preventing misunderstandings and possible disputes. Franzensbad has a large stall and it boasts of "the best moor baths in the world." Large glass vases contain specimens of this mud. Indeed, there is quite an extensive display of rival muds and peat in this section. Samples of mud are pressed upon the visitor as if mud was a highly valuable article to be studied and only truly appreciated by the well-educated connoisseur. The corporation of Franzensbad purchased in 1893 and in 1904 the springs, parks, and moor grounds, so that all the means of treatment should be placed under a uniform town administration. The modern methods and apparatus have been introduced but there is no wasteful competition between rival local establishments. An elaborate illustrated volume gives full details concerning the various springs and resources of the place. There are alkaline springs, chalybeate and steel springs, and one of the iron waters also contains lithia. Altogether there are 12 mineral springs and thus a great variety of diseases are treated there and of late many cases of heart disease have derived benefit at this station. Franzensbad is in Bohemia. It stands 1500 feet above the sea level and *viâ* Ostend can be reached from London in 22 hours. The exhibit at Earl's Court gives a very thorough indication of the resources of this station. The same may be said in regard to the world-famed resorts of Marienbad and Carlsbad. Every conceivable detail and necessary information can be obtained here. The physician or the patient, instead of writing long explanatory letters to one of these health stations, need only go to Earl's Court. Also there may be some hesitation, more detailed knowledge may be desirable, either in regard to the chemical composition of the waters, the sort of baths given, the style and cost of life, and the resources for exercise or amusement. All this cannot so readily be obtained by correspondence and one station compared with other stations. But at Earl's Court nothing is easier. Ample literature in English with maps and views are supplied gratuitously. Any medical practitioner can also have samples of the waters, or salts, or peat, or mud, for examination here in London. Therefore before recommending a patient to proceed to any one of these stations, his medical adviser has now within easy reach all the necessary information. Certainly this section of the exhibition has been well and thoroughly organised and medical men will do well to profit by this opportunity of securing practical information that cannot fail to be of use.

Other parts of Earl's Court illustrate the attractions of Austria, but especially of the Tyrol, for the general holiday seeker and tourist. Walking expeditions in the Tyrol are very practical and inexpensive. Much beautiful scenery and bracing exercise can be enjoyed. The Bohemian and Dalmatian sections are well calculated to inspire the tourist and the traveller with the desire to visit those romantic mountainous portions of the Austrian Empire.

MEDICINE AND THE LAW.

Action for Alleged Negligence against Medical Men.

THE case of Crier and Wife *v.* Hope and Currie which came last week before the Court of Appeal was an important case as to the liability of medical men. The action was brought by a gentleman and his wife to recover damages in consequence of the latter having contracted scarlet fever while being attended by the defendant, Dr. G. B. Currie, in her confinement, and it was alleged that the medical man was negligent in carrying the infection to her. The questions were, whether due and reasonable care had been taken by Dr. Currie and whether the mischief caused to the wife was due to any want of reasonable care on his part. The summing-up of Mr. Justice A. T. Lawrence in the court below was a most careful one and he told the jury over and over again that Dr. Currie undertook to use due and reasonable care and skill. At the trial a verdict and judgment were entered for the defendants, the jury finding that Dr. Currie had taken the usual precautions. Dr. Currie was defended throughout the case by the London and Counties Medical Protection Society. It was argued for the plaintiffs that the jury meant to find that Dr. Currie, though taking the usual precautions, did something short of taking reasonable precautions, or at all events that there was no finding that he took reasonable precautions. The Master of the Rolls, in the course of his judgment, said: "The case lay in a nutshell, whether it was put upon contract or upon the implied duty of a medical man to his patients. In each case the duty was the same. As to the point of an alleged technical assault, which could at most only result in nominal damages and could, therefore, only affect the costs, it was sufficient to say that the case at the trial was conducted without reference to that point and it was only after verdict that it was raised. That was too late. The verdict and judgment must therefore stand." There have been several actions at different times against medical men for alleged negligence, 3 were 70 and upwards. 36 were epileptic, 16 were con- nital idiots, and 24 were general paralytics. In fact, only l of the cases admitted were regarded as recoverable and of is number 58 were discharged during the year. The ylum committee deplores the fact that unsuitable tients are sent to its institution and calls the attention the unions interested to the matter. The chief causes insanity do not appear to vary in the experience this asylum; it is stated that hereditary taint and ngenital defect become more marked every year; they were aced in about 31 per cent. of the patients admitted which, owever, is below the experience of many other asylums. arious forms of worry accounted for 20 per cent. and coholic intemperance for about 18 per cent. Various seases, not specified in the table of causation, were usative in 35 of the cases, as to which further information ould be of interest. Of the 197 discharges 126 left covered, the recovery-rate being 38·39 per cent. of the lmissions. The deaths numbered 133, the chief cause ing general paralysis which accounted for 21. The death- ite amounted to 9·88 per cent. of the daily average umber resident. It is distressing to note that of 341 patients remaining at the close of the year only 5 were regarded as having a fair chance of recovery. . case of attempted suicide in a male patient presents atures of interest. This man, who was not regarded as icidal, was found hanging by the neck from a rafter, aving been out of supervision for only a few minutes. He as cut down and brought round sufficiently to be removed the ward where he relapsed into a semi-comatose state. he head and neck were greatly congested. He was bled to e extent of 20 fluid ounces, regained consciousness, and ade a good recovery. He retained no recollection of e act. The accommodation on the male side is deficient, 50 ases being boarded out as well as ten idiot children.

Joint Counties Asylum, Carmarthen (Annual Report r the Year 1905).—The admission-rate for the year as lower than usual of late years, 105 patients being eceived. The average number daily resident was 664. he numbers resident increase steadily but slowly. The ecovery-rate, reckoned on the admissions, was the satis- actory one of 46·31 per cent., having been 44 per cent. for 904. The proportion of deaths to the average number aily resident was the low one of 8·58 per cent. The edical superintendent, Dr. E. Goodall, having measured ut the accommodation available on the basis of the present equirements of the Commissioners in Lunacy, finds that on he female side the patients are in excess—though not greatly so—of the day and night space available, whilst on he male side the day rooms are somewhat overcrowded, but here is night space for some ten additional patients. 12 of the cases admitted died within a few weeks of admission from exhaustion, of which four were cases of acute delirium. Dr. Goodall states that it is very difficult, if not impossible, to give cases of this disease that unremitting attention which they need under the usual conditions of a county asylum, in which the proportion of nurses to patients is low, and he considers that such cases illustrate the advantage of the "acute hospital" system for asylums. It may be added that they also afford a strong argument in favour of the system of receiving recent and curable cases of mental disease into suitable wards attached to general hospitals. A history of insanity or allied disorders was present in 50·5 per cent. of the admissions, and even this high figure is regarded as an under-statement. It is observed that comparative statistics as to the existence of insane and neurotic inheritance in the general population on the one hand, and the population of asylums (including persons who have been in asylums) on the other, would be instructive as throwing light upon the real value of the hereditary factor in the causation of insanity as distinct from the environmental factor. Alcohol only accounted for 12 per cent. of the admissions, a low figure compared with that shown by asylums which serve exclusively urban districts. The religious "revival" in Wales was responsible for the mental disorder in 16 cases; these were mostly individuals predisposed by inheritance to insanity. 14 of the patients admitted were aged 60 years and upwards. It is observed that there appears to be an increasing unwillingness on the part of Poor-law guardians throughout the country to make adequate provision for the aged and harmless insane in workhouses. This asylum makes no adequate provision for the segregation of consumptives; during the day these are, so far as possible, segregated in the airing-courts under verandahs. The proportion of deaths from tuberculous disease of all sorts was 17·5 per cent. of all deaths, as against 25, 23, and 28·6 per cent. for the previous three years, the last-mentioned figure being that for 1902; and the mortality from this disease per 1000 inmates was 15, as compared with 17·9 in the preceding year. These are gratifying reductions, bringing the institution into line with other asylums of similar size, and it is hoped that time may show that the improvement is traceable to various measures which of late years have been taken to provide for the stricter isolation of the tuberculous and for the disinfection of their environment. Inquiry has been made into the history of the cases which have relapsed during the past 12 years with a view to acquire information as to the durability of recovery after discharge. During this period 143 patients were admitted who had had previous attacks, and of these 121 had relapsed once. Of the latter 18 had kept well for from three to six years and 29 for from six to 33 years. The remaining 74 remained well for varying periods to a maximum of three years only. Dr. Goodall is of opinion that these results are probably much inferior to what might be looked for from the returns of institutions receiving the better educated and more comfortable classes. This question of the durability of recovery in mental cases merits further inquiry. Of 64 cases of first attack only 33 were received within three months of the commencement of the illness. The general health of the institution was satisfactory. The Commissioners in Lunacy in the course of their annual report on the institution refer to a regrettable dispute which exists between the three local authorities owning the asylum as to quotas payable towards the upkeep of the building and which is of some years' standing, the practical consequence being that administrative reforms which are required in the interests of the patients are delayed.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8717 births and 3550 deaths were registered during the week ending July 21st. The annual rate of mortality in these towns, which had declined from 13·2 to 11·7 per 1000 in the four preceding weeks, rose again last week to 12·0 per 1000. During the past four weeks the death-rate has averaged 12·1 per 1000, the rate in London during the same period being 11·9 per 1000. The lowest death-rates last week in the 76 towns were 4·7 in Hanley, 4·9 in Handsworth (Staffs), 5·4 in Rochdale, 5·7 in Leyton, 5·9 in Reading, and 6·2 in Cardiff; the highest rates were 16·5 in Liverpool, 17·0 in Huddersfield, 17·4 in Merthyr Tydfil, and 17·8 in Stockport and in Burnley. The 3550 deaths registered in the 76 towns last week were 94 more than the number in the previous week, and included 424 which were referred to the principal epidemic diseases, against 373, 406, and 251 in the three preceding weeks; of these 424 deaths, 165 resulted from diarrhœa, 104 from measles, 59 from whooping-cough, 43 from diphtheria, 38 from scarlet fever, and 15 from "fever" (principally enteric), but not any from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 1·4 per 1000 in the 76 towns and to 1·5 per 1000 in London. No death from any of these diseases was registered last week in Southampton, Coventry, West Hartlepool, or in ten other smaller towns, while they caused the highest death-rates in Norwich, Birkenhead, Liverpool, Wigan, Salford, Burnley, Huddersfield, and Rotherham. The greatest proportional mortality from measles occurred in Salford, Burnley, and Huddersfield; from whooping-cough in Birkenhead, York, and Swansea; and from diarrhœa in Willesden, Norwich, Birkenhead, Liverpool, St. Helens, Wigan, Salford, Burnley, and Rhondda. The 43 deaths from diphtheria included ten in London, three in Liverpool, and two each in Croydon, Walthamstow, Plymouth, Bristol, Birmingham, and Derby; of the 38 fatal cases of scarlet fever 12 occurred in London, four in Liverpool, three in Birmingham, three in Manchester, and two each in Hornsey, Bristol, Leicester, and Leeds; the 15 deaths from "fever" included six in London and two each in West Ham and Wigan. No fatal case of small-pox was registered in any of the 76 towns during the week. The number of small-pox patients in the Metropolitan Asylums hospitals, which had declined from 13 to five at the end of the four preceding weeks, had

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 26th, 1828.

The Coroner's Inquest is, in respect to its object and tendency, one of the most useful institutions in this country; but its utility is greatly limited, and in many instances entirely defeated, by the inefficiency of the individuals who, for the most part, fill the office of Coroner. The fact is, that in almost all the cases which come before the Coroner, the question to be determined is of a medical, and not of a legal character. The statute of the 4th Edward I., which comprehends nearly all the law relating to the office of Coroner, is a short act of Parliament, which any man who runs may read and understand. Any man of ordinary understanding, who has read this statute, and who has served occasionally as juryman, or witnessed a few trials, so as to acquire some general information as to the common rules of evidence, is competent, as far as legal qualifications are concerned, to discharge the duties of the office of Coroner. But the medical qualifications which would enable a Coroner to discharge with efficiency the duties of his office, are of a far higher order, and can hardly be expected to be possessed by any man not a member of the medical profession. Questions constantly arise, in the course of inquisitions before the Coroner, which demand an intimate acquaintance on the part of that officer, with anatomy, pathology, chemistry, and therapeutics. The very *gist* of these inquiries, in all cases of difficulty or doubt, involves a medical question, which can only be adequately determined by medical men. To determine whether the death of the deceased arose from natural or violent causes; to judge whether a particular injury is capable of producing the effects supposed to have resulted from it; to decide whether poison has or has not been taken, and to distinguish between cases in which a poisonous substance may have been administered with a guilty intent, and where it may be presumed to have been given as a therapeutic agent—such are the points on which a Coroner is perpetually called upon to inform and direct a Jury, and on which, without a medical education, it is impossible that he can himself arrive at sound and satisfactory conclusions. PARIS and FONBLANQUE, in their Medical Jurisprudence, feeling the necessity of medical information to a due discharge of the duties of the office of Coroner, recommend the addition of a medical assessor to assist that officer in the holding of Inquests. But this is advising the repair of an old building, when the cheaper and wiser course would be to pull it down, and erect a new edifice on its site. Why retain machinery, which is confessedly inadequate to the object it was intended to accomplish? If medical men are best qualified to discharge the duties of Coroners, why not appoint them in place of those low and incompetent persons into whose hands we find Mr. Justice Blackstone complaining that the office, in his time, too frequently fell?[1]

ASYLUM REPORTS.

Derby Borough Asylum (Seventeenth Annual Report for the Year ending Dec. 31st, 1905).—The admissions into this institution during the year under report numbered 103, of which 80 were chargeable to the Derby union, the remainder being out-county and private patients. Nine of the patients admitted had previously been under treatment and it is of interest to note that they had on an average kept well for nearly seven years since discharge. In 64 of the admissions the illness was stated to be of less than one year's duration, in other words they were cases likely to benefit by treatment; of these 70 per cent. presented curable forms of mental disorder. The proportion of suicidal patients admitted was high, at least 30 having meditated or threatened suicide, whilst in 18 others an attempt had actually been made. Rather more than one-half of the patients admitted suffered from some physical disease. In the opinion of Dr. S. Rutherford Macphail, the medical superintendent, at least 60 per cent. of cases admitted to asylums break down "because the nervous system is the weak point in the families from which they spring." Of the 103 admissions to this asylum, hereditary predisposition to insanity was ascertained in 37 cases, whilst in 15 other cases there was "a family history of neuroses and other hereditary affections." In 74 of the cases some exciting cause was given in the history, coming under the head of "mental or moral cause" in 28, whilst in 46 the cause was a physical one, such as alcohol, a bodily disease, or the change of life. Alcohol was responsible in only 12 per cent. of the admissions instead of the average of 20 per cent. of previous years. The daily average number resident was 331; this number reached [illegible] for the first time in 1893, five years after the opening of the asylum, and has steadily risen to the present figure. 39 patients were discharged recovered, giving the high proportion of 49·3 per cent. of the admissions. In addition nine were discharged as relieved. The death-rate was the moderate one of 9·9 per cent. of the daily average number resident. The causes of death were usual ones. The death-rate from tubercle has throughout been very low in the asylum. The general health of those in the institution was quite satisfactory. There were a few sporadic cases of influenza but no epidemic occurred, whereas, it is interesting to note, epidemics of this disease have recurred it [illegible] annually for 14 years. The important point of the tendency to relapse is referred to by Dr. Macphail, who finds that since the opening of the asylum 19 per cent. of the patients discharged as recovered have relapsed and have been re-admitted, not at all a high proportion. The Commissioners in Lunacy report favourably of the condition of the institution.

Glasgow Royal Asylum, Gartnavel (Ninety-second Annual Report for the Year 1905).—The total admissions into the institution during 1905 numbered 119 and were composed of private patients classified as follows: professional class, 16; domestic, 29; commercial, 34; agricultural, seven; industrial, ten; and unknown or indefinite, 23. Of the 119, 31 sought admission voluntarily and the physician-superintendent, Dr. L. R. Oswald, finds that the percentage of recoveries is higher amongst voluntary than amongst certified patients, the probable explanation being that in the former the malady is in an early stage and therefore more amenable to treatment. Depression was more common among the patients admitted than excitement. Many of the cases received showed the alternating type of mental disorder called by some *folie circulaire*; this in Dr. Oswald's experience is more common among the educated and middle classes than among the working classes treated in county asylums. We agree that it is uncommon to meet this condition in the latter institutions. Amongst causes of insanity hereditary predisposition was found in only 35 per cent. of the admissions and in from 17 to 18 per cent. this was the only ascertained cause. Alcohol was the cause in very few cases—namely, 12—but in several in which this had been supposed to be the cause it appeared on critical inquiry that excessive indulgence was only a symptom, and this is a point well worthy of attention. About 40 per cent. of the patients admitted were in the favourable class for treatment—that is to say, the attack was the first one and had lasted less than three months. The average number resident daily throughout the year was 432. The recoveries amounted to 42, or 35 per cent. of the admissions. This is not a high proportion but it is to be noted that in addition 40 patients were discharged greatly improved. The deaths numbered 24, giving the very low proportion of 5·6 per cent. on the daily average number resident. Eight of the above number were over 75 years of age. The asylum has for years had a low death-rate. We observe from one of the reports of the Commissioners in Lunacy that acute cases are treated by rest in bed in the open air, which is an excellent plan. These reports refer to the liberal manner in which the institution provides for patients of limited means. When last it was visited by the Commissioners 57 patients were paying under £40 per annum, 155 paid £40, and 110 from £40 to £60.

Surrey County Asylum, Brookwood (Annual Report for the Year 1905).—From the thirty-seventh annual report of Mr. James E. Barton, the medical superintendent, it appears that the admissions at this asylum during the year on record numbered 350 and the average number resident was 1345. The mental condition of the majority of the patients admitted was, it is regrettable to learn, very unfavourable from the point of view of recovery. Many were old and feeble, no less than 116 being over 50 years of age, of whom

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[1] Excerpt from a leading article on non medical coroners.

Correspondence.

"Audi alteram partem."

DENDRITES AND DISEASE.

To the Editors of THE LANCET.

SIRS,—Sir William Gowers's lecture on Dendrites and Disease[1]—surely one of the most luminous contributions to modern neurology—raises many questions of absorbing interest. To two of these I propose with your permission to make a brief reference.

1. Sir William Gowers assumes that the dendrites of adjacent neurons are separated by, and influence one another through, an intervening "matrix"—i e., that there is no direct conduction of nerve impulses from one neuron to another—but that a dendrite of one neuron so influences the matrix in which it terminates as to generate a nerve impulse in the adjacent dendrite of another neuron. He, moreover, regards the dendrites as being contractile, and he suggests that the influence which the dendrites of one neuron exert on those of adjacent neurons can be regulated by means of this contractility; when, e g., they contract firmly all communication between adjacent neurons is cut off, as may happen during sleep and functional anæsthesia; when, on the other hand, they relax neighbouring neurons are brought into functional relation.

I venture to raise the question whether during this dendritic relaxation adjacent dendrites of separate neurons may not merely come into close proximity, but be brought into actual contact, so as to admit of the direct *conduction* of nerve impulses from one neuron to another, which would be a far more simple process than the induction *de novo* of a nerve impulse in the second cell; and not only so, but by means of this direct conduction it would be easier, one would think, for a particular dendrite of one neuron to affect a particular dendrite of another neuron, *and no other*, than by the less direct method. The great difficulty in the way of accepting this view is the fact that, so far as our actual knowledge goes, nervous impulses are always started in neurons by a *de novo* generation through a non-nervous medium, as in the case of the sensory end-organs; it must, moreover, have been solely through a non-nervous medium that nerve impulses were generated when neurons first evolved in the animal kingdom.

2 The view that the influences passing between adjacent neurons can be regulated by means of the contractility of their dendrites is one which throws an altogether new light on many difficult problems in neurology. The ultimate dendrites of a neuron are probably to be counted by the thousand, and one can conceive how, by a greater or less degree of contraction of this or that dendrite belonging to adjacent neurons, one neuron may be capable of influencing another in a multitude of different ways. Modern histology seems to point to the conclusion that every neuron contains a definite number of fibrils along which nerve impulses are conducted. These impulses are thus compelled to travel along definite, pre-determined routes. The fibrils do not, as Sir William Gowers points out, end in the body of the neuron cell but pass right through it, so that all nerve impulses must start at their extremities—i.e., at the termination of the dendrites or axites. We do not know whether by education the fibrils can be increased in number; quite possibly they cannot be. Now, seeing that the fibrils pass right through the body of the neurons and that nerve impulses must travel along the fibrils, it is obvious that if there were actual permanent union between the adjacent dendrites of neighbouring neurons, all nervous action would tend to be stereotyped, and it would be impossible for the nervous system to acquire the power of executing new combinations except by the development of new fibrils, and, seeing how endless are the new combinations which the nervous system can be taught to execute, this would imply an increase in the number of the fibrils so great as to be physically impossible. These difficulties are removed if we assume that all nervous coördination is effected by an adaptive contraction and relaxation of neighbouring dendrites, for in this way it would be possible to link up in a multitude of different ways particular fibrils of one neuron with particular fibrils of another neuron, and thus compel nerve impulses to pass along particular routes. On this view the education of the nervous system would essentially consist in the acquisition by the dendrites of special powers of adaptive contractility.

From analogy with telephonic methods, we may speak of this as the principle of "dendritic exchange," and though it does not explain how the dendrites come by their power of adaptive contractility, and of forming new exchanges, yet its formulation seems to be a step towards an ultimate explanation of the well-nigh limitless capacity of the nervous system to make new acquisitions, many of them of a bewildering complex nature.

I am, Sirs, yours faithfully,

Wimpole-street, July 16th, 1906. HARRY CAMPBELL.

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[1] y 14th, 1906, p. 67.

LEPROSY AND FISH-EATING.

To the Editors of THE LANCET.

SIRS,—Referring to your review of Mr. Jonathan Hutchinson's book[1] and to his recent letter in your columns[2] I shall be obliged if you will permit me to point out a fallacy that underlies at least one of his arguments and invalidates some of his conclusions.

The contention to which I refer is that Christianity—especially the Catholic type, but, in lesser degree, Protestantism also—fosters leprosy by its encouragement of fish-eating as contrasted with other creeds which either forbid, or at least discourage, it. Mr. Hutchinson supports this view by quoting what he considers the excessive proportion of Christians among the inmates of some of the Indian leper asylums visited by him. Had he carried his inquiries a little further he would have found in almost all cases that the Christian lepers, from whose numbers he deduces the prevalence of the disease among Indian Christians, *had become converts after they were lepers*, and that whatever weight they possess as evidence should consequently go into the opposite scale. Let us take a specific instance in which the facts are beyond question. Referring to his visit to the leper asylum at Tarn Taran, Punjab, Mr. Hutchinson writes (p. 106): "On the calculation that in the community there were two lepers per 10,000, the Mussulman population (14,000,000) might have supplied 2800 and the Hindoo population of 13,000 000 2600, whilst the little Christian population of only 72,000 ought to have sent not more than 14; it did, however, to this one asylum alone, which is only one out of five under missionary care in the Punjab, send no fewer than 34. Under the term 'Christian' are here included Protestants as well as Catholics and English as well as natives. If we restrict the calculation to the native Christians, which is only fair, seeing that the Europeans supply no lepers, we should then find that its calculated proportion would be only eight. Very similar statements apply to the Calcutta Asylum, to that of Madras, and to that of Bombay."

Mr. Hutchinson takes for granted that these 34 Christian lepers are contributed by the native Christian community of the district and argues that they are four times as numerous as they should be. The fallacy of this assumption and of any argument based on it is clear from a single fact—viz., that in every one of these 34 cases *the leprosy preceded the Christianity*. Let me support this assertion by the testimony of a witness possessed of actual knowledge. The Tarn Taran Asylum is one of 45 such institutions supported or supervised by the Mission to Lepers in India. For 21 years religious teaching has been provided for its inmates under the care of the Rev. E. Guilford, who is now the superintendent of the asylum, the management of which has been transferred to the mission by the Punjab Government. In a letter just received and referring to Mr. Hutchinson's statement Mr. Guilford writes: "Of those 34, every one had become a leper before he or she was admitted into the Church. I have worked in the Punjab now for nearly a quarter of a century and during that time I have never seen one single case of leprosy amongst our native Christians." This emphatic testimony also rebuts another of Mr. Hutchinson's suppositions—viz., that "the number in any given asylum does not represent the total in the Christian population of the district. Many of the Christian lepers are, no doubt, still at their own homes" (p. 106). Whatever may be the case in those parts of India in which the Christian population is largely Romanist, this is certainly not correct as further fallen to two at the end of last week; no new cases of small-pox have been admitted into these hospitals during the past four weeks. The number of scarlet fever patients remaining under treatment in these hospitals and in the London Fever Hospital at the end of the week was 2942, against numbers increasing from 2225 to 2842 at the end of the 13 preceding weeks; 413 new cases were admitted during the week, against 366, 378, and 406 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 118 and 119 in the two preceding weeks, further rose to 133 last week, but were slightly below the corrected average number in the corresponding periods of the four preceding years. The causes of 39, or 1 1 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. The causes of all the deaths were duly certified in West Ham, Leicester, Nottingham, Salford, Sheffield, Newcastle-on-Tyne, Cardiff, and in 49 other smaller towns; nine uncertified deaths were registered in Liverpool, five in London, four in Birmingham, three in Manchester, two in Bradford, two in St. Helens, and one each in 14 other towns, including Bristol, Leeds, and Hull.

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[1] THE LANCET, June 16th, 1906, p. 1695.

[2] THE LANCET, July 7th, 1906, p. 45.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15 3 and 14·3 per 1000 in the two preceding weeks, further fell to 13 7 per 1000 last week, but was 1·7 per 1000 above the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns last week ranged from 10·2 in Paisley and 10·7 in Edinburgh to 15·3 in Glasgow and 24·2 in Perth. The 470 deaths in the eight towns showed a decrease of 21 from the number in the preceding week, and included 12 which were referred to whooping-cough, 11 to diarrhœa, seven to measles, five to diphtheria, and five to "fever," but not any to small-pox or to scarlet fever. In all, 40 deaths resulted from these principal epidemic diseases last week, showing a decline of 23 from the number returned in the previous week. The 12 deaths attributed to whooping-cough were five below the number in the preceding week, and included eight in Glasgow and three in Aberdeen. The fatal cases of diarrhœa, which had been 20, 18, and 22 in the three preceding weeks, decreased last week to 11, of which six occurred in Glasgow and three in Dundee. The seven deaths from measles were considerably fewer than the number in any other recent week, and included three in Glasgow and two in Edinburgh. The five fatal cases of diphtheria were slightly in excess of the numbers in the two previous weeks; three of these deaths were registered in Glasgow, where also four fatal cases of cerebro-spinal fever, included under the heading "fever," were recorded. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 54 and 59 in the two preceding weeks, further rose to 66 last week and slightly exceeded the number in the corresponding week of last year. The causes of 16, or 3 4 per cent., of the deaths registered in the eight towns last week were not certified, the proportion of uncertified deaths in the 76 large English towns during the same period being 1·1 per cent.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 16·4, 16 9, and 18·7 per 1000 in the three preceding weeks, further rose to 20 9 per 1000 during the week ending July 21st During the 13 weeks of last quarter the death-rate averaged 21·4 per 1000, against 14·8 in London and 17·1 in Edinburgh. The 152 deaths of Dublin residents during last week showed an increase of 16 over the number in the preceding week, and included ten deaths from the principal epidemic diseases, against five, four, and 12 in the three preceding weeks; of these ten deaths, three were referred to whooping-cough, three to diarrhœa, two to measles, one to diphtheria, and one to "fever," but not any to small pox or to scarlet fever. These ten deaths from the principal epidemic diseases were equal to an annual rate of 1·4 per 1000, the rate from the same diseases last week being 1·5 in London and 0·5 in Edinburgh. The 152 deaths in Dublin included 26 of children under one year of age and 47 of persons aged 60 years and upwards. Five inquest cases and three deaths from violence were registered; and 59, or 39 per cent., of the deaths occurred in public institutions, the proportion in London being 40 per cent. The causes of five, or 3·3 per cent., of the 152 deaths were not certified either by a registered medical practitioner or by a coroner; the proportion of uncertified deaths during the same period being 0·5 per cent. in London and 4·3 per cent. in Edinburgh.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: J. McElwee to the *President*, temporary, and A. McLean to the *Renown*. Staff Surgeon H. Cleft to the *Hawk*. Surgeon P. H. Bannister to the *President*, additional for three months' course at West London Hospital.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Percy H. Johnston, C.M.G., is placed on retired pay (dated July 13th, 1906).

Colonel C. Todd has been appointed to officiate as Principal Medical Officer, Western Command, India, vice Colonel F. W. Trevor, on leave.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel D. Ffrench-Mullen, Bengal, has been appointed to officiate as Principal Medical Officer, Sirhind and Jullunder Brigades, vice Colonel H. Hamilton, C.B., on leave.

THE ROYAL VICTORIAN ORDER.

Lieutenant-Colonel Bruce Morland Skinner, R.A.M.C., Secretary to the Advisory and Nursing Boards of the War Office, has been appointed a member of the Fourth Class of the Royal Victorian Order.

TINNED MEAT IN PLYMOUTH GARRISON.

According to Plymouth Coast Defence Orders, dated July 17th, when preserved meat is issued officers commanding units are to arrange for a regimental board of officers to assemble to open and to inspect all tins of meat before use and, where possible, the medical officer in charge of troops will attend.

RESUMPTION OF MEDICAL CLASSES IN RUSSIA.

It is announced in the *Torgovo Promyshlennaya Gazeta* that all classes in the Military Medical Academy will begin work on Sept. 14th this year. This may be rather a sanguine prophecy but there are other evidences that it is the intention of the authorities not to allow the military medical organisation to lapse into chaos. For example, the committee appointed to draw up the new regulations for the constitution of the military sanitary elements of the army has recently considered the question of grades for military medical officers. It was agreed to be indispensable that these officers should be graded as generals, staff officers, and superior officers with all their prerogatives. They will constitute a special official corps—"the Corps of Military Medical Officers"—and they will wear distinctive uniforms and enjoy special professional as well as military privileges.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of this society was held on July 11th at 11, Chandos-street, Cavendish-square, London, W., Dr. G. F. Blandford, the President, being in the chair. 14 members were present. The death of Dr. John Clarke was reported, who was elected a member in 1847 and had been one of the vice-presidents since 1867. Four new members were elected. The sum of £1358 10*s*. was voted for the half-yearly grants to the annuitants of the charity. Five letters had been received from widows of medical men since the last court asking for relief and this had in each instance to be refused owing to the fact that their husbands had not been members of the society. Mr. Edward J. Blackett was re-elected secretary. The membership of the society is open to any registered medical man who at the time of his election is in practice within a radius of 20 miles from Charing Cross. Full particulars and application forms may be obtained from the secretary, 11, Chandos-treet, Cavendish-square, London, W. The next election is on Oct. 11th, and names of intending candidates must be received on or before Sept. 19th.

full translation of Dr. Lancereaux's remarkable communication will appear in the September number of the *ris Medical Journal*.

May I be allowed to supplement your Paris correspondent's e by pointing out that Dr. Lancereaux has used this thod since 1899, has found it free from danger in an perience of over 1200 injections, and that he has been led consider it as the only method meeting the indications for atment. In this, his latest communication on the subject, . Lancereaux gives full details of three cases of aneurysm of the abdominal aorta, of the first part of the aorta with sternal tumour, and of the ophthalmic artery with robbing exophthalmos—all apparently cured. The injecn, consisting of 200 grammes of a 7 per 1000 saline ution containing five grammes of gelatin, is made into the iteal region every five or six days (being generally comtely absorbed in a few hours), from 30 to 40 being usually quired. Successful cases have been recorded even when skin over the sternum was thinned by the aneurysmal . Such treatment surely holds out more hope than can expected from rest, diet, potassium iodide, &c.

I am, Sirs, yours faithfully,

aris, July 19th, 1906. A. A. WARDEN.

SSOCIATION OF MEDICAL DIPLOMATES OF SCOTLAND.

To the Editors of THE LANCET.

SIRS,—May I ask (through the medium of THE LANCET) se holding Scotch qualifications kindly to reinform me of various disabilities and grievances they may know pertaining to these qualifications, in order that they may investigated and redressed, if possible, by the above ociation.—I am, Sirs, yours faithfully,

CLAUDE ST. AUBYN-FARRER,
, Westbourne Park-road, W., July 16th, 1906. President

THE AFTER-EFFECT OF ETHYL CHLORIDE ANÆSTHESIA.

To the Editors of THE LANCET.

SIRS,—I have followed with interest the reports on ethyl loride as an anæsthetic, especially in dental work. I ve used it for that purpose in a large number of cases and d it a good anæsthetic, as there is a period of analgesia ter the patient is conscious. As yet I have had no fatal ses but have noticed bad after-effects. I always fill the g with nitrous oxide and then gradually drop into e bag from a side tube three cubic centimetres of ethyl loride (for an adult). Dr. A. B. Kingsford in his ports says that he has noticed two forms of rigidities, t according to his experience they come on during e anæsthesia. In all my cases the rigidity was only oticed after the dental operation was past. The local asm I found most frequently in the fingers; the patient omplained of great pain and it took considerable force to elax the same. This form of rigidity occurred very frequently. s to the second form of rigidity the patient took the anæshesia all right and after the teeth were out he suddenly ook what to me looked exceedingly like an epileptic fit. hen he became quite rigid in the opisthotonos position long the dental chair. The pulse could hardly be felt, the reathing ceased for a few seconds, his head was retracted o the one side, the teeth were clenched, and the eyes staring and fixed with the pale grey ash colour of death. He suddenly became conscious and felt sick and vomited, but on trying to get out of the dental chair he had a tendency to become rigid again. His pulse was 39 but it gradually became 53 after a hypodermic injection of one-fortieth of a grain of strychnine. It may be interesting to state that his pupils were unequal for 48 hours after the operation, the right dilated and the left pin-pointed. On examination of his heart the first sound in the mitral area was not heard distinctly but otherwise he seemed in good health. The difficulty I find in using nitrous oxide alone in dental work—and rather to get the patient to sit different times—is that with some patients you cannot get a proper anæsthesia with gas at all. I am strongly of the opinion that there is always great danger in giving ethyl chloride in the sitting posture. I may state that I always prepare my patients for the operation as if I was going to give chloroform. Thanking you in anticipation,

I am, Sirs, yours faithfully,
JOSEPH STARK, L R.C.P. & S. Edin.
Fruitfield, Airdrie, July 23rd, 1906.

THE GENERAL MEDICAL COUNCIL: THE DIRECT REPRESENTATIVE FOR SCOTLAND.

To the Editors of THE LANCET.

SIRS,—We have been instrumental in promoting a requisition to Dr. Norman Walker inviting him to be a candidate for the post of Direct Representative for Scotland on the General Medical Council. Dr. Walker received so large a measure of support on the last occasion and has since continued to take so active and useful a part in the promotion of the improvement of medical education as well as in other matters of medical politics that we have every reason to believe that on this occasion his candidature will be successful.

The requisition has been largely signed by practitioners from all parts of Scotland and Dr. Walker has indicated his willingness to accept it. We shall be glad to hear from those who wish to join the general committee.

We are, Sirs, your faithfully,
G. A GIBSON,
3 Drumsheugh-gardens, Edinburgh.
F. W. N. HAULTAIN,
July 24th, 1906. 12, Charlotte-square, Edinburgh.

A NECESSARY REPUDIATION.

To the Editors of THE LANCET.

SIRS,—My attention has recently been drawn to an article in the *British Medical Journal* of July 14th where, under the column Medico-Legal and Medico-Ethical, reference is made to a weekly paper called the *Free Lance* and to a Dr. A. W. Wheatly advertised in its columns.

On applying at the offices of the General Medical Council I find that I am the only man with those initials and name on the Medical Register. The subject being, as the *British Medical Journal* describes, "Touting for Patients" (and I may add in a very objectionable way), I take this my earliest opportunity of disclaiming any knowledge of the person there described, or connexion of any kind with him or his methods.

Your sense of justice and your knowledge of the injury that may accrue to me from this base use of my name will, I feel sure, enlist your sympathy and help by publishing this my disclaimer in the next issue of THE LANCET.

I am, Sirs, yours faithfully,
ARTHUR W. WHEATLY, M.B.Durh.,
Consulting Surgeon, Western Ophthalmic Hospital.
Kensington, S W., July 24th, 1906.

*** We sympathise warmly with our correspondent, who has a right to feel intensely annoyed with the *Free Lance*.—ED. L.

THE UNIVERSITIES AND THE FUTURE OF DENTISTRY.

To the Editors of THE LANCET.

SIRS,—The progress and development of the profession of dentistry must always be matters of interest to medical men. Whether in the future the two professions will tend to be differentiated more clearly or to become amalgamated completely the aims and objects of the practitioners of medicine and dental surgery are so analogous that any movement on one side will naturally be watched sympathetically by the other. Considerable changes are at the moment taking place in dental education which are likely to have far-reaching effects upon the ultimate development of the profession. With regard to the movement for the establishment of university degrees in dentistry a hope has been very generally expressed that it might be found possible to grant to the members of a learned profession the customary hall-mark of a liberal education. In the practical carrying out of this idea a very distinct division in the views of the teachers of dentistry has been disclosed. While one point of view has been shown to be held by a majority of the teachers in most provincial centres of dental education, an antagonistic view seems very strongly held by an important majority of metropolitan teachers. So distinctly local does the cleavage in the teaching profession seem to be that I may conveniently speak of the two opposing views as the metropolitan and the provincial ideals for the development of the dental profession. The metropolitan ideal appears to be the establishment of dentistry as a special department of medicine on lines analogous to the applied to districts like the Punjab. The experience of the agents of the mission to lepers in all parts of India coincides with that of Mr. Guilford—viz, that cases of leprosy are very few indeed among Indian Protestant Christians and that a converted leper applying for admission to an asylum is a rare event.

The importance of this particular aspect of the general question will be clear when it is added that there are in Indian asylums connected with the Mission to Lepers no fewer than 2700 Christians, at least 95 per cent. of whom were lepers prior to conversion, a fact which must largely modify Mr. Hutchinson's conclusions that they indicate the prevalence of leprosy among Indian Christians

On the general question of the relation between fish-eating and leprosy I offer no opinion. My personal attitude is one of suspended judgment; "not proven" must at present, I think, be the verdict. But however this may be Mr. Hutchinson deserves our gratitude for having elicited many facts which should at least contribute to a solution of this perplexing problem.

I am, Sirs, yours faithfully,
JOHN JACKSON,
Organising Secretary to the Mission to Lepers in India and the East.
Exeter Hall, Strand, London, W C, July 18th, 1906

A CASE OF IDIOSYNCRASY TO EGG ALBUMIN.

To the Editors of THE LANCET.

SIRS,—The following case of extreme idiosyncrasy to egg albumin is, I believe, of considerable rarity and is remarkable from the fact that this substance produces in the patient in question severe gastro-intestinal irritation when taken internally and sets up urticaria when applied locally to the skin.

The patient, a woman, aged 26 years, came under my notice in the early part of this year with the history that from earliest childhood she had been unable to take eggs or to eat any article of diet which contained them. It was stated that the amount of egg required to produce severe symptoms was extremely small, even the minute quantity contained in the glazing of a roll being sufficient to cause considerable uneasiness. The first occasion on which egg was given to her was stated to have been at the age of ten months and nearly resulted in her death, the symptoms consisting of muscular rigidity and cyanosis. Subsequently many attempts were made to establish toleration to eggs but without result. At the present day the patient finds her disability of the greatest inconvenience, as the certainty of becoming ill if she should happen to partake of any dish in the composition of which eggs have been used practically precludes her from dining away from home. The symptoms depend upon the dose of egg which is taken. A quantity equivalent to four grammes would appear to be a relatively large dose and is followed in a short time by stinging in the throat, epigastric pain, vomiting, and later by either diarrhœa or obstinate constipation. With smaller doses pain comes on about an hour after the egg has been taken and lasts a longer or shorter time according to the dose.

In addition to the gastro-intestinal irritation produced by the ingestion of the egg, it was stated to me that the application to the skin of the raw white of egg would raise a blister. Being naturally sceptical of the possibility of this I arranged for an experiment to be made in my consulting room and the result showed beyond a doubt that egg albumin certainly possessed a directly irritating action upon the skin. On April 10th, at 12 o'clock, a little raw white of egg was spread over an area on the forearm of the size of a half-crown. In half an hour's time this area was deeply reddened and presented several raised wheals. I may state that the skin over the whole body was remarkably irritable and dermographic. The organs of the body were sound, there was no albumin in the urine, and no signs of gastro intestinal disturbance. As the patient had consulted me with the hope of finding some means of cure, or at least of alleviation, I suggested that vegetable charcoal might possibly be found to act as an antidote. My suggestion has been acted upon with apparent success. The patient writes that, having accidentally taken some egg in soup, which judging from previous experience would certainly have brought on an attack, she took at once a charcoal pastille, with the result that no unpleasant effects were experienced. Experiments are now proceeding with the object of ascertaining the exact amount of egg albumin which is neutralised by a given weight of charcoal.

I am, Sirs, yours faithfully,
GEORGE HERSCHELL, M.D. Lond.,
Senior Physician to the Kensington General Hospital.
Harley street, W., July 21st, 1906.

STUTTERING.

To the Editors of THE LANCET.

SIRS,—The lack of any reference to spirometric readings in the lecture by Dr W. S. Colman on Stuttering published in THE LANCET of July 14th, p. 70, strikes me as a very noticeable feature. I have made some observations in cases of stuttering and every case I came across was below the proportional chest build. The chest was not well developed and the respiratory capacity, as tested by a spirometer, was considerably below the normal—in other words, the pump supplying the voice reed was inadequate. The breathing capacity is always increased by encouraging the development of abdominal breathing, which is so well marked in good singers, but is discouraged by the writer of the article who observes "that singing relieves the stuttering" and calls it a "trick." The explanation is simply that the words of the song and the time of the tune unconsciously give the singer an idea of the quantity of air required to phonate, and it is this idea that requires cultivation in order to relieve stutterers of their impediment.

I am, Sirs, yours faithfully,
Swansea, July 17th, 1906 G. ARBOUR STEPHENS.

THE TREATMENT OF RINGWORM.

To the Editors of THE LANCET.

SIRS,—I have read with interest the various articles and letters which have appeared in THE LANCET on ringworm and I have been struck with the ease with which some men can cure it with comparatively simple remedies. My experience unfortunately has been quite the reverse. In deep-seated ringworm parasiticides and escharotics I have found of little or no practical utility. It would take up too much space to enumerate all the drugs I have tried for months without success. About a year ago, however, an article by Dr. H. G. Adamson appeared in THE LANCET on the Treatment of Ringworm of the Scalp by Means of the X Rays,[1] and I asked Mr. Blackburn of Messrs. Mottershead and Co. to carry it out according to the directions on several cases which had resisted all treatment for months. This he did, measuring the rays with pastilles, which necessitated an exposure of from 20 to 24 minutes for a single sitting for each patch. Some of the children had it applied three or four times for different patches at intervals of several days. Their heads were then anointed with a weak ammoniated mercury ointment. In three weeks the hair came out, leaving a bald patch which in the course of a few months became covered with hair free from ringworm. To my mind x-ray treatment when it can be obtained is the most satisfactory means yet devised for the cure of ringworm.

I am, Sirs, yours faithfully,
J. W. STENHOUSE, M.B. Edin., M.R.C.S. Eng.,
Medical Officer, Royal Deaf Schools, Old Trafford.
July 2nd, 1906.

DR. LANCEREAUX'S METHOD IN THE TREATMENT OF ANEURYSM.

To the Editors of THE LANCET.

SIRS,—Many of your readers will have noted with interest your review of "Heart Disease and Aneurysm of the Aorta," by Sir William H. Broadbent and Dr. John F. H. Broadbent, on p. 94 of THE LANCET of July 14th. Although dealing especially with treatment these authors offer little encouragement as regards the use of the one important therapeutic measure introduced in the last few years in the treatment of aneurysm—namely, the subcutaneous injection of gelatinised salt solution. As your reviewer remarks, "their condemnation of this means of treatment is rather too sweeping." May I call the attention of your readers to Dr. Lancereaux's communication to the Academy of Medicine on this subject, briefly summarised in the same number of THE LANCET (July 14th) by your able Paris correspondent.

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[1] THE LANCET, June 24th, 1905, p 1715.

Specialists, as we now have them, are mostly limited practitioners with a hospital appointment. The hospital appointment, probably well deserved, is a good advertisement, for it brings the men and their names prominently before the public and gives them opportunities for practice and for self-advertisement which are not possessed by the men who fail to get such appointments. The staff of a hospital is necessarily limited. The men already on it have a power which they can use, on occasion, for the benefit of a friend or a favourite. Of two young men equally well qualified and both ambitious to secure a vacant post the one who is looked upon by a member of the staff with friendly regard as well as respected for his ability and attainments is more likely to secure the majority of votes than the one who has merely first-rate qualifications and testimonials, for boards of management are always (or usually) open to the advice of the professional members and readily accept the dictum of the man who has won their confidence either by plausibility or by good work.

Now I do not blame either the board or the interested and friendly advocate. Most of us probably when seeking an appointment much to be desired would gladly avail ourselves of such powerful help and the man who is successful in his application may be justly congratulated. But the man who fails may be equally deserving, and his failure, as things go now, may profoundly and adversely affect his subsequent career. Often a young man, qualified by years of patient toil, both at books and at the bedside; nay, who is already the occupant, perhaps, of a minor post in a hospital, has his prospects blighted and his heart discouraged by an unwarranted and partisan preference for a competitor, whose qualification, judged solely with regard to merit, is much inferior to his own. I know of such a case and therefore can write with authority and, doubtless, a similar knowledge belongs to many others in the profession. What, then, should hinder this young man from doing that which would give him the next best chance of pursuing with success the career upon which he has set his heart? What harm can there be? what moral or legal obligation would be disregarded, should he set himself forward, to his friends and to others, as a man desirous of following a special line of medical or surgical practice? Already his friends know of his special preparatory work and of his proclaimed, and perhaps acclaimed, intention. Why should he have to sink into the whirlpool of competitive general practice just because, through no fault or deficiency on his part, he has failed to obtain an entrance ticket, as it were, to a *quasi* close corporation, whose justification for existence has no better foundation than that of the private opinion of its jealous members? I can see neither wrong nor harm in the thing that I suggest. A medical man may, with the consent of all, call himself "surgeon" or "physician." What wrong can there be in adding to the name a descriptive phrase to indicate the special branch he wishes to pursue? The supposed objection would seem to be ridiculous and I for one, until a sounder reason than any I know of be brought forward, must refuse to accept it. And if, then, a young man, qualified by the schools and the hospitals, may claim this privilege, what should hinder the claim of an old man, qualified by a life's experience in addition to the other?

Will you, Sirs, or will any others tell me if I am wrong, and show me the fallacy of my argument? or, failing to do that, will you or they give me the advantage of your or their support?

I am, Sirs, yours faithfully,

A. Z.

⁂ "A. Z.'s" excellent letter contains amidst its plenitude of truth some faults in argument—at least, that is our view. To comment upon the letter at once might be to stifle the discussion which he seeks, and which would, we think, be valuable. We should like to hear other professional opinions. —ED. L.

THE MEAT OF THE PEOPLE.

To the Editors of THE LANCET.

SIRS,—Your annotation in THE LANCET of July 14th on "The Meat of the People" is well timed and well worthy of the serious consideration of all who are interested in the physical well-being of the race. I have had opportunities within the last few years of studying the question somewhat fully and the conclusion I have arrived at is that, however savoury well-cooked foreign meat may be, its nutritional value is very low in proportion to the price charged for it, especially when it is palmed off on the public, as it unquestionably frequently is, as fresh English meat.

I have seen in different parts of New Zealand the whole process of preparation of mutton and lamb for the English market and I have nothing but admiration for the eager watchfulness and care with which the process is carried out in that colony. Here there is no question of suspicion as to cleanliness or purity or careless inspection. It is a question of comparative nutritive value of the meat when placed on the table.

I venture, in the first place, to doubt whether the quality of the mutton when fresh is equal to that of home-fed mutton. I know that much of the grass is grown from English seed. But it has not the same appearance as English grass. It looks ranker and coarser, as if it had grown to quantity rather than quality and to be deficient in chlorophyll, whatever that may imply.

Secondly, and of this I am convinced, the freezing process of itself greatly diminishes the nutritive value of the meat and renders its fibre less digestible. Whether this process acts in this way continuously during the long period of transit to this country I am unable to say, but I think it is quite possible.

Thirdly, I believe the further diminution in nutritive value during the process of thawing to be enormous and that this process is not properly understood and seldom properly carried out.

Lastly, it is well known that even the best home-bred and fed mutton loses considerably and inevitably in nutritional value in the process of cooking, however skilfully this may be performed. I think that in the case of meat which has been frozen, perhaps for months, and thawed in a few hours the nutritional loss sustained in the cooking process is likely to be proportionately much greater.

I therefore believe that by the time the meat reaches the table its value as nutriment is low as compared with that of fresh English mutton and does not represent the value at which it is sold.

It is all very well to be told, as we so often are, that when placed on the table well cooked you cannot tell New Zealand from English mutton and that some people prefer it to English mutton. This does not affect the difference between the two as nutriment; and it is only true when the joints are hot.

As I believe the New Zealand mutton and lamb is the best and the most carefully supervised form in which our imported meat-supply arrives I will not touch upon the other sources. But I think it should be regarded as a very serious offence when consumers are charged the value of fresh English mutton for what is, I believe, a far less wholesome and less nutritious article.

I am, Sirs, yours faithfully,

PERIPATETICUS.

PROFESSOR AUGUST FOREL ON THE SEXUAL PROBLEM.

(FROM A CORRESPONDENT.)

THE Hungarian National Defence League against the spread of sexual diseases, conjointly with the "Good Templar" Order, recently held a meeting of considerable interest in Budapest.

Professor August Forel was invited to deliver an address and to enlighten the public on the hygiene and ethics of sexual life. In Hungary, where syphilis and other venereal diseases cause immense harm and distress, the medical profession welcomes every movement which may have the effect of diminishing this scourge. The town-hall, where the address was delivered, was crowded with people of all ranks and occupations who paid the greatest attention to all that was said.

Professor Forel was introduced by Dr. Leo Liebermann, professor of hygiene and public health at the University of Budapest. In the early part of his address he explained the idea of ethics. He endeavoured to prove the evolution of ethical feelings on a natural basis, tracing them back to the remote period when the instinct of preservation of the species formed the only link between human beings. The field within which affection might exist at first included only individual males and females but it was gradually enlarged until it position at present occupied by ophthalmology or laryngology, whilst in the provinces the aim of the teachers is rather the development of an independent or sister profession working hand in hand with medicine but under a separate organisation and having an educational curriculum planned to meet its own special needs. In their attitude towards the proposals that have been made by various universities with regard to the regulations for degrees in dentistry the two parties have very clearly indicated the hopes which they entertain for the future of the profession. In London the majority of teachers have expressed the opinion that no degree in dentistry should be conferred on any person who does not already possess a university degree qualifying him to practise medicine and surgery. Several provincial universities have, on the other hand, already established degrees in dentistry, the regulations for which merely require that candidates shall have worked out a more elaborate curriculum and have attained a higher standard of knowledge of their own special subjects than those hitherto demanded of candidates for a licence in dental surgery. It does not appear that the University of London has yet decided whether to fall in with the wishes of the majority of metropolitan teachers or to follow the example of the provincial universities which have already instituted independent degrees. It is, indeed, not quite clear whether the University would best meet the wishes of metropolitan teachers of dentistry by offering a special dental degree to its medical graduates or by withholding a degree in dentistry altogether.

To withhold degrees altogether would obviously be the best means to secure that in the University dental surgery should be treated on the same footing as any other special branch of medicine or surgery. But whether this course is pursued or whether special degrees in dentistry are offered to medical graduates, or whether the degree of Master of Surgery is modified so as to be adapted to the requirements of surgeons wishing to show special knowledge of dentistry, the University of London in thus supporting the metropolitan ideal of dental development may inflict a serious blow to dental education in London, as well as to the best interests of the dental profession and of the public. The attempt to secure that the practice of dentistry should be confined to the members of the medical profession is one upon which the medical profession is justified in having a very strong opinion, and I am sure that my views are shared by many. If the ideal of some that all dentists should be fully qualified medical men ever had any prospect of fulfilment it was entirely shattered, I think, by the passing of the Dental Act. Some progress towards the absorption of the dental into the medical profession has hitherto been possible, because the taking of diplomas or degrees in medicine has hitherto been the only method of satisfying the ambition of a dental student who felt that a mere licence in dental surgery allowed him insufficient scope for showing his determination to rise to the higher ranks in his profession. This means of satisfying his ambition has been encouraged by the Royal Colleges and by the medical schools, and has been undoubtedly successful in helping dentists, who become also qualified medical practitioners, to secure appointments at hospitals, the recommendations for which are generally made by the medical staff. These proceedings have been watched by some interested in dental education with complacency and by others with much anxiety. The medical curriculum can hardly be regarded as an ideal education either of mind or hand for those who do not wish to practise medicine; and many have insisted that to require a dentist to be also educated as a doctor of medicine is not more certain to make him a better dentist than if he were required to be educated also as a doctor of divinity or of music. The education of those dentists, whose ambition leads them to qualify also as medical men, must be crowded and cramped, while there is risk that the curriculum for all dentists may be badly arranged because it may be dominated by the ideas of those who wish to make it easy for a dental student at any time to become also a medical student. Another serious result of this policy of amalgamation has been the constant "bleeding" of the dental profession of its best material. It is only the students of good preliminary education and keen enthusiasm who can face the hard work and strain of securing a medical as well as a dental qualification. It is stated by those thoroughly conversant with the facts that a large proportion of these best dental students so soon as they are qualified desert dentistry and practise either medicine or surgery.

In considering this important question it must not be forgotten that a qualified medical practitioner has conferred upon him by the Dental Act all the rights and privileges of a qualified dental surgeon. The attempt therefore to amalgamate the professions practically amounts to an attempt to eliminate the specially qualified dental surgeon. To many it appears that its ultimate result would be to throw back the practice of dentistry into the hands of the barbers and unqualified and uneducated persons who performed these duties for the public before the Dental Act was passed. To me it seems inconceivable that a sufficient supply of dentists to deal with the immense public need should ever be admitted through the portal of the medical profession, although I know that many, and probably you, Sirs, hold the opposite view. But the action of the provincial universities has removed the lever which the metropolitan idealist hitherto possessed for the promotion of this view. The ambitious student can now seek a university degree in dentistry in addition to his dental diploma, confident that the extra training to which he will be required to submit will improve his capacity either as a practitioner of dentistry or as a reseacher in the departments of dental therapeutics or pathology. If he cannot secure such a degree in the university of his own city he will seek it elsewhere. It seems probable, therefore, that those cities the universities of which refuse to recognise special dental attainments unless they are accompanied by the technical knowledge required of a qualified medical practitioner, will be seriously handicapped in their attempt to maintain efficient schools of dentistry.

I am, Sirs, yours faithfully,
A London Physician and Teacher.

TWO POINTS OF MEDICAL ETHICS.

To the Editors of The Lancet.

Sirs,—I have the honour to write to you to ask for a decision on two points of medical ethics which refer chiefly to medical officers in military employ attached to regiments.

1. When a regimental officer reports sick with some disease such as gonorrhœa, scabies, or acute alcoholism, to which, rightly or not, a certain amount of shame attaches, what should be the medical officer's procedure as regards his daily report of sick to his commanding officer, such sick report being a printed form with a space for the names and diseases of sick officers and being in no way a confidential report? Besides being seen by the commanding officer, it is seen by numerous clerks, sergeants, and officers, hence the question arises on which I ask a decision—viz., What is one's duty considering both one's duty as a medical officer to the officer commanding (who writes the regimental officers' annual confidential report) and one's duty as his doctor to the patient?

2. The other point on which I ask your opinion is as follows. All regimental officers are, of course, entitled to the services of their medical officer. A case occurs in which a medical officer is attending a regimental officer for illness, the regimental officer, without informing his medical officer, goes to see another medical man (not connected with the service) who attends the officer for two or three days; the officer then deciding to revert as a patient to his own medical officer, sends for him, maintaining he (the regimental officer) has a right to any services he may call for. The medical officer, after protesting against the professional indignity to which he had been submitted, continues to treat the regimental officer. A few months later the same officer again falls ill and again behaves in an exactly similar manner and the medical officer cannot, according to regulations, refuse to attend the regimental officer in future. What should he do? I inclose my card.

I am, Sirs, yours faithfully,
I.M.S.

June 1st, 1906.

WHAT IS A SPECIALIST?

To the Editors of The Lancet.

Sirs,—A little while ago I wrote to you virtually asking this question: Can any medical man, especially an old man, if he chooses to practise as a specialist, call himself such on his door-plate? You courteously replied in the negative but with your permission I would like to enlarge my plea, *as follows:*—

or on behalf of, patients towards their own maintenance amounted to £1606. The special donations received during the year were as follows: Hospital Sunday and Saturday Fund, £368 15*s.*; Mr. Arthur Earle, £300, "In Memoriam Elizabeth Earle"; whilst other special donations amounted to £165 10*s.* The expenditure incurred in laying out the fields is now fully justified by the improvement in the general appearance of the grounds and also in affording increased facilities to patients for open-air exercise. The fourth closed shelter completed this year has proved an additional attraction for patients.

July 24th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff and Swansea Hospitals.

THE complete report of the Cardiff Infirmary for the year 1905 shows that the economical management which has characterised this institution in former years has been maintained. The average weekly cost per patient was £1 4*s.* 8*d.*, or about 3*d.* per week less than in 1904. The average cost per occupied bed was £64 5*s.* 4*d.*, a sum which compares favourably with that expended in the Swansea Hospital during the year ending May 31st last—namely, £71 19*s.* It is only fair to state that the cost per bed in Swansea in the previous year was only £63 12*s.*, and the total income in the year just ended fell short of the total expenditure by only £183, whereas the Cardiff expenditure exceeded the income by £2312. The more favourable financial position of the Swansea institution appears to be almost entirely due to the larger proportionate amount contributed by the workpeople of the district as compared with Cardiff. The total income in Swansea was £8265 and the workpeople subscribed £3519, or 42 per cent. In Cardiff the total income was £11.725 and the workpeople's contribution was £3584, or 30 per cent. of the whole. If the Cardiff workpeople had contributed in the same proportion as their comrades in Swansea there would have been a balance on the right side of nearly £100 on the year's working of the Cardiff institution. Although a great deal has been done during the past few years in the way of remodelling the wards and the administrative quarters of the Cardiff Infirmary nothing has been done to improve the out-patient department with the exception of the erection of casualty rooms. It is estimated that a sum of £7000 should be spent on this department if it is to fulfil the requirements of the present day. Early in the year an anonymous donor offered £1000 towards this amount, provided the remainder were forthcoming from other sources before the end of the year. It is gratifying to find that there are now only £2000 to be subscribed towards the sum named.

Infantile Mortality in Cardiff, Swansea, and Rhondda.

The statistical table relating to infantile mortality which is now included in the annual reports of medical officers of health enables a detailed comparison to be made of the number of deaths of young children in different localities. In 1905 the infantile mortality rate in Cardiff was 118 per 1000 births, in Swansea 130 per 1000, and in the Rhondda 199 per 1000. The Rhondda rate was about equal to that which has been recorded during the previous ten years and was higher than that in any of the 75 great towns of England and Wales. It is of interest to find that the proportion of deaths at varying age periods was practically the same in the three towns. In Cardiff 27 per cent. of the children died under a month old, in Swansea 28 per cent., and in the Rhondda 26 per cent. Under six months old there died in Cardiff 68 per cent., in Swansea 71 per cent., and in the Rhondda 68 per cent. When the causes of death are compared there is, however, a much greater disparity. Premature birth was recorded as the cause of death in 12 per cent. of the Cardiff children, in 10 per cent. of those in Swansea, and in only 7 per cent. of those in the Rhondda. Tuberculous diseases were responsible for 6 per cent. of the Cardiff deaths, 4 per cent. of those in Swansea, and 3 per cent. of those in the Rhondda. Diarrhœal diseases caused 14 per cent. of the Cardiff, 10 per cent. of the Swansea, and 20 per cent. of the Rhondda deaths. In connexion with this last group Dr. J. D. Jenkins states that no measures directed specially towards their prevention have been carried out in the Rhondda with the exception of the distribution, through the medium of one of the registrars of deaths, of cards containing a number of hints drawn up both in English and in Welsh for the guidance of mothers in the feeding and general management of their babies. This distribution has been going on for four years and it is now possible to compare the diarrhœal death-rate during those years with that which prevailed previously. As the cards were distributed in only a portion of the district and to the mothers of four-fifths (about 3600) of the children born in the whole of the Rhondda it is also possible to compare the results during the same years in the card-distributed area with those in the district where no cards were given. In 1905 the infantile diarrhœa death-rate was 33 per 1000 births in the "card district" and 50 per 1000 in the rest of the sanitary area, compared with 74 and 58 respectively in 1901 when no cards were distributed. The fall in the "card district" is thus very noticeable. It should be stated that the division of the two districts is a purely arbitrary one. The inhabitants of each are of the same class of life, living in similarly built houses the sanitary arrangements of which are almost identical and with the wage-earner bringing home about the same amount of money. These results as recorded by Dr. Jenkins are a strong argument in favour of his plea for the appointment of one or more women inspectors who by visiting the homes of the people could point out the pitfalls to be avoided and the best measures to adopt in order to assist in the upbringing of healthy and well-grown children.

The Dolgelly Urban Council and Isolation.

The question of providing an isolation hospital for the urban and rural districts of Dolgelly, in North Wales, was further discussed at meetings of the urban and rural councils held on July 20th and 21st. Since the previous meetings of these councils, mentioned in THE LANCET of June 23rd, p. 1791, there have been 16 fresh cases of scarlet fever notified in the urban district and one death occurred in a small cottage where there were four cases of the disease and where any kind of isolation was impracticable. Two deputations, representing the district nursing association and Dr. Williams's Endowed School for Girls, attended before the urban council and urged it to proceed with the erection of an isolation hospital, a free gift of land for which purpose has been offered. A petition to the same effect, signed by 300 residents, was also handed in. Reference was made to the pecuniary loss caused by the outbreak of infectious disease in towns that laid themselves out as visitors' resorts like Dolgelly, and on behalf of the school it was pointed out that they would be incurring a great danger if it was rendered unsafe for the boarders from various parts of England and Wales to be together with the day pupils from the district. At a previous meeting of the rural council it was decided to accept the offer of a free gift of land and to proceed with the erection of a hospital at a cost not exceeding £500, provided that the urban council contributed two-thirds of the cost, the rural council to contribute one-third. The urban council after a discussion lasting for two hours accepted those terms but only on the casting vote of the chairman. The rural council met the following morning and after further considering the matter decided to take no further action until the views of the various parishes were obtained. It was stated that 90 per cent. of the rural population were opposed to the movement as it would increase the burden of the rates.

Monmouthshire Water-supply.

The example set by the county council of Glamorgan in its endeavour to secure for the inhabitants the county watersheds is being followed by the Monmouthshire council. The county surveyor has presented a report dealing with the available supplies in the county and at a conference held on July 18th between representatives of the council and of the local sanitary authorities a proposition was unanimously passed expressing the opinion that it was desirable to conserve the present sources of water-supply and to take steps to prevent outside companies and bodies from extracting water to which the inhabitants of the county have a natural claim. The county council was asked to promote a Bill in the next session of Parliament having these ends in view. Monmouthshire has an area about two-thirds that of Glamorgan and a population in the administrative county of only about one-third, but a very large extent of the Monmouthshire coalfields is still unworked, so that a great increase in the population is probable during the next 20 years when the eastern and western valleys of Monmouthshire will be as densely populated as included families and culminated in the true ethics of humanity, the modern sentiment of love uniting the whole human race. It was a generally accepted opinion that family affection was a distinctively human characteristic but this he considered to be no more than an exhibition of human self-conceit. The lower animals showed obvious examples of family affection and among them parrots, monkeys, and swallows stood on the highest pinnacle of domestic faithfulness.

Professor Forel then went on to say that in the human species it was altogether at variance with ethical principles that the male sex should make use of its superior strength to oppress the female sex. Only education could help in developing the ethical feelings—that education which taught men to keep their lower instincts in check. Temperance in appeasing every need was not by any means the same thing as leading an ascetic life. The greatest difficulty of ethical life was that the results of deeds inspired by ethical feelings were not in harmony and in proportion with the intention. Therefore the art of real ethical education consisted in making motives and deeds harmonise. Professor Forel declared egotism to be an anti-ethical feeling according to the actually accepted sense but he emphasised the fact that in their true sense egotism and altruism were not opposed to one another and that both were necessary. He said that laws were necessary evils; they were, however, indispensable for keeping our passionate inclinations in check. These inclinations we inherited with our nature. The more evolved and developed mankind became the less need there was of laws.

Speaking of sexual ethics, Professor Forel alluded to the Malthusian system, which experience had proved to be impracticable and, in fact, it could not be otherwise, for it did not take account of human nature and was simply a propaganda of abstinence. He rejected also the views advocated by Tolstoy who began to proclaim the benefits of continence at an age when, owing to his advanced years, he was already beyond temptation. The artificial prevention of conception was, however, an ethical duty in all cases in which the woman could not regain her strength after her first labour and in which married couples were the subject of bodily or mental deficiency. Professor Forel did not recommend the prohibition of child-bearing but only its regulation. Healthy, intelligent women ought, he said, to bring forth many children at proper intervals. He vehemently denounced the social injustice with which illegitimate children were treated and he demanded for them an entire equality of rights. He also spoke very severely of the terrible negligence which allowed girls to enter the state of matrimony without having previously been enlightened. He sharply criticised the existing system of prostitution and the so-called *mariages de convenance* and said that only stupidity could prevent the enlightenment of children in sexual matters.

Coming to the hygiene of sexual life Professor Forel demonstrated that ethics were here in complete agreement with hygienic laws. Everything that the ethics of sexual life claimed was at the same time hygienic. He referred to the dangers of alcohol, which were well shown by the fact that most insane people and bodily and mentally deficient children were descended from intemperate parents. Such children have usually been conceived after the consumption of alcoholic beverages. The State organisation of prostitution did not deter young men from resorting to prostitutes and rather had the effect of inducing them to do so. It therefore ought to be discontinued and marriage ought to be encouraged among young men. Men ought not to defer marriage until they had earned enough to live luxuriously and to give parties and entertainments but they ought to marry while they could love their wives with the fervour of early manhood.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Report of the Medical Officer of Health for 1905.

Dr. E. W. Hope's report on the health of Liverpool during the year 1905 possesses many points of great interest. Dealing with the large amount of infantile mortality, he states that the loss of infant life in the various districts of the city varied widely, the range during the year being from 84 per 1000 in the district where it was the lowest up to 240 per 1000 in the district where it was the highest. Even in the lowest the death-rate of infants was more than four times as high as the general death-rate of the community. Zymotic diseases accounted for 899 deaths, the great majority of them—viz, 681—being due to diarrhœa, the exciting cause being, no doubt, the same as that in the case of atrophy—viz, improper feeding. Following upon this comes whooping-cough with 60 death and measles with 59 deaths. Under the heading of diseases of the digestive system no less than 267 deaths of infants are recorded; 677 deaths of infants were due to diseases of the respiratory system and 496 deaths to diseases of the nervous system. The natural guardian of the infant is the mother and it is only with extreme caution that the efforts of the municipality can be specially directed to the preservation of infant life, but such efforts have been made in a variety of ways. Hospital provision is now available for infants suffering from whooping-cough and measles where they can be received, together with the mother if necessary. With regard to feeding there is strong evidence that the efforts of the health committee in widely circulating instructions as to the feeding of infants, in employing a large staff to give verbal instructions and to supervise, in establishing sterilised milk depôts at which milk specially prepared for infants can be obtained, and in improving the general sanitation of slums have resulted in marked benefit. Dr. Hope alludes to the good results which have followed from the voluntary notification of cases of pulmonary tuberculosis since February, 1901, when the system came into operation. A special form upon which the notification can be made has been circulated among medical men and in those cases in which the requirements of the health committee have been fulfilled the usual notification fee has been paid. During the year 1905, 1971 cases of pulmonary tuberculosis were reported, of which 110 were duplicates, leaving a total of 1861 cases reported. The deaths from the disease totalled 1245; in 614 instances the rooms and bedding were disinfected and in 64 cases the bedding, &c., were removed for special disinfection in the apparatus for that purpose. Out of the 1861 cases reported 1257 were males. The birth-rate of Liverpool is still the highest in the country, thus raising uniformly the crude death-rate. The death-rate, 19·2 per 1000, was at a point indicative of great health improvement—the lowest ever recorded. Last year six importations of small-pox had to be dealt with—isolation, revaccination, disinfection, and domiciliary visitation for defined periods being among the expedients for the protection of others. There were 325 cases of typhoid fever reported during the year, as against 434 in the preceding year, and 681 in 1903. The deaths from the disease were 49, being 33 fewer than in the preceding year. Those figures represent the lowest recorded since the extension of the city boundaries in 1895.

The Royal Infirmary and Summer Diarrhœa in Children.

The committee of the Royal Infirmary has fallen in with the wishes of the corporation to set apart a ward in the infirmary for the exclusive treatment of children suffering from summer diarrhœa. A ward containing 20 beds has been fully equipped for the purpose in the large recreation room, the expenses of which will be borne by the municipality. It will be interesting to ascertain the causes of the diarrhœa in infants now so prevalent in Liverpool, and every endeavour has been made by the health authorities of the city to cope with the disease. The ward will be in use during the present epidemic.

Liverpool Convalescent Institution.

The Lord Mayor of Liverpool presided over the thirty-second annual meeting of the subscribers in the Gladstone Hall of the institution, at Woolton, on July 14th. The report of the council shows that 2732 patients were admitted during the year 1905. The increase in the number of patients is to a large extent the result of the system of nomination and recommendation forms, by which subscribers and donors are entitled to recommend patients for admission, either on payment of the nominal sum of 5*s*. per week, or without charge, in proportion to the amount of their contribution. By this coöperative system benefactors are brought into more intimate touch with the working and administration of the institution and their interest is maintained. By the liberality of Miss Winslow and Messrs. Walker of Litherland, two more free beds have been added, making, with the sums received from new subscribers, a net increase during the year of £65 in annual subscriptions, the total amount under this head being now £1122. The sums received from to the trying time through which Mr. Darnell had passed[1] and to the universal sympathy felt for him by his medical brethren, called upon Dr. W. Calwell (President of the Ulster Medical Society) who conveyed to Mr. Darnell the deep and warm sympathy, not only of the members of his society, but also of numerous medical men throughout the United Kingdom, who had joined in that presentation. He claimed for Mr. Darnell that he had "exercised a reasonable degree of care and skill"; also honesty of purpose and uprightness of conduct, which seemed to his professional brethren to entitle him to a verdict. It was only the absolutely prohibitive expense that prevented the case from being carried to the House of Lords. Dr. Cecil E Shaw (secretary to the Ulster branch of the British Medical Association) read the address, to which Mr. Darnell having replied, the chairman made the presentation. A vote of thanks to the chairman, moved by Dr. John Campbell, terminated the proceedings. Letters of apology were read from the following subscribers to the presentation who were unable to be present: Sir William Whitla, Professor J. W. Byers, Mr. J G. Jefferson (Lisburn), Dr. J. M. Killen (Larne), Mr. J. Rowan (Gargary), Mr. H Buchanan Murray, Dr. Cathcart, Dr. J. S. Morrow, Mr. T. C. Nelson, and Mr. H. T. A. Warnock (Donegal).

Bangor Nursing Society.

At the annual meeting of the Bangor Nursing Society held on July 19th, the Dowager Marchioness of Dufferin presiding, Professor Byers gave an address on Infantile Mortality and Consumption, pointing out the aid which nursing societies might give in the solution of such pressing health problems. At the conclusion of the address Lady Dufferin expressed her appreciation of Professor Byers's address and her thanks to him for coming to Bangor to help their nursing association.

Visitation of the Royal University of Ireland.

Sir William Anson, Bart., M.P., and the Right Hon. Sir A. M. Porter, Bart., Master of the Rolls, held in Dublin, by command of the King, a special visitation of the Royal University of Ireland on July 20th for the purpose of inquiring into the relations between the University and the Queen's Colleges, and to solve the doubt which had arisen as to the meaning to be applied to certain words in the Act of Parliament as to the holding of prizes, scholarships, exhibitions, or Fellowships, or other emoluments by students of the University. The object of the visitation was to determine a legal point raised in the University which affected a number of the students in the three Queen's Colleges of Belfast, Cork, and Galway. It depended on the proper construction of the University Education (Ireland) Act (1879), Section 9, Subsection 4, which provides that "no student holding any exhibition, scholarship, fellowship, or other similar prize in any other university, or in any college attached to a university, or in any college endowed with public money, shall hold any of the said exhibitions, scholarships, fellowships, or other prizes in the university, to be created by the said charter, without taking the value of such previous exhibition, scholarship, fellowship, or other similar prize into account." By some it was argued that under this section a student who obtained a scholarship of, say, £20 value, at any of the Queen's Colleges and within the 12 months gained an exhibition of £40 in the Royal University, will only be entitled to receive the difference between the two amounts from the Royal University as "the value of the previous scholarship must be taken into account." On the other hand, it was argued that having once received the emoluments connected with the Queen's College scholarship the student had ceased to hold it, and did not come under the operation of the statute. If the first view had been established the holders of the many valuable scholarships in connexion with the Queen's Colleges of Belfast, Cork, and Galway would have been disentitled during the year after winning such to obtain money prizes in the Royal University without deduction, or might even receive nothing in some cases. It also meant, what was admittedly unfair, that scholarships provided by private individuals in the Queen's Colleges—who wished to encourage education—should be treated as if they were scholarships founded by public money. It was contended that it was unfair that the amount of one of these scholarships awarded to a student should be appropriated by the Royal University in the event of that student passing an examination and gaining a scholarship in the Royal University. It was, on the one hand, contended on behalf of University College, Dublin, which it was said had no public endowment, that the proper construction of Subsection 4 was one that would prevent concurrent endowments. On the other hand, it was shown that University College had 15 professors, each receiving £400 a year salary and £6000 for its arts course from the Government, whereas the arts endowment to each of the Queen's Colleges was £2638 a year and all the time University College was entirely free from all the exemptions proposed to be put in force in the case of the Queen's Colleges, while in reality it was a Government endowed College. The visitors decided (and against their decision there is no appeal) that a Queen's College student was not disqualified from holding an exhibition in the Royal University because he holds a Queen's College prize. The matter has from time to time occasioned discussions in the Senate and has aroused much unpleasant feeling among the representatives of the institutions concerned; it is therefore hoped that after this authoritative and final decision the matter will be allowed to drop.

July 24th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Malaria and Yellow Fever in Senegal.

ON July 10th M. Kermorgan read a paper before the Academy of Medicine in which he related the good results obtained by the Dakar and St. Louis Railway Company in its efforts to protect its servants against malaria and yellow fever. The improvement in the morbidity conditions was remarkable. At St Louis for the year 1902-03, before the protection of buildings by metallic gauze shutters, ten railway servants spent 139 days in hospital and were also off work for 44 days. In the year 1904-05, after the instalment of such shutters, the number of days in hospital fell to 13, while the men who were off work without going to hospital numbered only two who were off work for 13 days between them. Similar figures were reported from other stations.

Serious Insanitary Conditions in Madagascar.

At the same meeting of the same society Professor. Blanchard gave a most serious account of the widespread and fatal prevalence of malaria in Madagascar. Tananarivo is considered the most healthy place in the island on account of its elevated situation. In 1900 the number of deaths from malaria was 48, in 1903 it was 137, in 1904 the number was 277, in 1905 it had risen to 686, and for the first four months alone of 1906 the deaths had mounted to 980. The population of the town is only 40,000. Professor Blanchard had studied the causes of the outbreak with great care and he had arrived at the conclusion that the primary cause lay in the works for the construction of a road and a railway from Tananarivo to the coast. These works have been the cause of bringing down the Hovas from the healthy plateaux which they formerly inhabited, and where they have up to now been free from malaria, to the low-lying coast lands Here there are two important species of mosquito—pyretophorus costalis and myzomyia funestis—which are carriers of the malaria parasite. As the railway and road are pushed further into the interior the mosquitoes travel with the gangs of navvies and as a consequence the fever also. A similar phenomenon has been observed in Mexico where yellow fever, which was formerly confined to Vera Cruz, crept along stage by stage to the city of Mexico when the railway which unites the two towns was laid down. In the case of Madagascar it is to be hoped that measures of destruction will be taken against the mosquitoes and also that the use of quinine will be insisted upon, for these two methods are the best for combating the malaria scourge.

A New Chair in the University of Paris.

On the motion of M. Roussel the Municipal Council of Paris has just decided to recommend the creation in the Faculty of Medicine of a chair of oto rhino-laryngology.

A Case of Bubonic Plague.

On July 3rd a sailor at Havre was suddenly attacked by acute colic and nausea and being unable to work went home. In the evening of the same day, as he had become worse, a medical man was sent for who prescribed a certain course of treatment. Next day a hospital physician was called in and saw the patient twice. At his second visit he was able definitely to ascertain the presence of enlarged glands in the patient's groin and that also he showed other symptoms of the Rhondda and Aberdare valleys in Glamorgan are at the present time.

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[1] Vide THE LANCET, vol. i., 1906, pp. 925, 999, 1213, 1234.

Physical Degeneration Posters in Bath.

The health committee of the corporation of Bath has instructed the medical officer of health (Dr. W. H. Symons) to draw up a poster setting out the extent to which physical deterioration is due to the excessive use of alcohol.

July 23rd.

SCOTLAND.

(From our own Correspondents.)

The Notification of Pulmonary Tuberculosis and Measles in Edinburgh.

At a meeting of the public health committee of the Edinburgh town council held this week it was agreed to recommend to the town council that the compulsory notification of pulmonary tuberculosis should be adopted. It was also agreed to recommend the voluntary notification of the first case of measles occurring in a family within a period of two months—that is to say, that after the lapse of two months a case occurring is to be reckoned a first case. At the same meeting it was intimated that since the opening of the wards in the city hospital for the reception of cases of pulmonary tuberculosis 47 cases had been admitted. 14 of the patients had died after a residence of from two days to 11 weeks. The average cost was 11½*d.* per day per patient.

The Presentation to Sir Henry D. Littlejohn.

As has already been mentioned in The Lancet, the presentation to Sir Henry D. Littlejohn is to take the form of his portrait by a leading artist. Subscribers to the testimonial would facilitate arrangements if they would send their contributions to Mr. R. N. Ramsay, Bank of Scotland, Forrest-road, Edinburgh, who is acting as treasurer.

Graduation Ceremony at the University of Glasgow.

On July 17th in the Bute Hall the summer graduation ceremony took place at the University of Glasgow. As is usually the case at this midsummer function, all the graduates were candidates for medical degrees. The degree of M.D. was conferred on seven Bachelors of Medicine, "with commendation" in one case. One student received the degree of M.B., C.M., having started his course under the old regulations, and 63 graduated M.B., Ch.B., of whom two obtained their degrees "with honours." The proportion of ladies among the graduates was much as usual, one lady appearing among those who graduated as Doctors of Medicine and five among those who graduated as Bachelors. At the close of the ceremony Professor John G. McKendrick, who is retiring from the chair of physiology, addressed the graduates. He first touched upon the great development which had taken place within recent years in universities and more especially in connexion with their own University. In dealing with the progress that had been made in medicine and surgery he said that it seemed to him that we were even now on the road to great discoveries that might, as regards some details of practice, revolutionise the medical art. It was becoming more and more apparent that physiology, pathology, and pharmacology were closely connected and on knowledge derived from these practical medicine was based. He therefore urged those who had just graduated to preserve their knowledge of these three sciences, to link them together, and they would find that each would help and illuminate the other.

Arbroath Infirmary.

At the annual meeting of the directors of, and subscribers to, the Arbroath Infirmary attention was drawn to the fact that a person suffering from pulmonary tuberculosis had recently been admitted to the convalescent home. The meeting accordingly resolved that in the case of granting certificates for admission to the home all medical practitioners should make a thorough examination to satisfy themselves in a given case that the patient was not suffering from pulmonary tuberculosis. As regards the finances of the hospital, although the balance is on the wrong side the deficit is very small. The total revenue for the year was £1178 4*s.* 11*d.* and the expenditure, including expenses connected with the convalescent home, amounted to £1194 10*s.*

July 22nd.

IRELAND.

(From our own Correspondents.)

Efforts to Check Tuberculosis in Dublin.

At a meeting of the rural district council of the South Dublin union held on July 18th Mr. D. Edgar Flinn, medical inspector of the Local Government Board, suggested that the council should join with the corporation of Dublin and the various public bodies in the county in establishing a sanatorium for the whole of the city and county. The death-rate in Dublin from consumption, he stated, was over 3 per 1000 of the population, while in Belgium and other countries where sanatoriums had been established for grappling with the disease in its early stages the death-rate had been reduced to 1 per 1000. The following motion was adopted by the council:—

> That we, the South Dublin rural district council, hereby call on the corporation and the various rural and urban districts of county Dublin to appoint representatives to form a deputation to wait on the Chief Secretary with a view to obtaining a Government grant towards the cost of a sanatorium for consumptives.

Post-Graduate Study in Dublin.

Arrangements have been made by the ten general hospitals in Dublin as well as the various hospitals devoted to special subjects, with the sanction of the President and Council of the Royal College of Surgeons in Ireland, for the holding of two courses of post-graduate study annually during the months of June and September. Each course will last for three weeks and will render the whole of the clinical material in the city available for post-graduate instruction. The various subjects are classified under the headings of medicine; surgery; diseases of children; diseases of the skin, of the eye, and of the throat, nose, and ear; gynæcology; therapeutic applications of the x rays and of light; pathology and bacteriology; lunacy; operations on the dead body; anatomy; and sanitary science. The next course will extend from Sept. 24th to Oct. 13th. A fee of 5 guineas will be charged for each course and will entitle the holder to participate in every section of the course. The instruction given will be as practical and as helpful to the varying needs of the practitioner as possible. Further information can be obtained from, and applications are to be addressed to, Professor A. Fraser at the Royal College of Surgeons, Dublin.

Tuberculosis in Cattle.

At a meeting of the committee appointed to inquire into the working of the Department of Agriculture and Technical Instruction held in Belfast on July 17th Mr. R. T. Huston, a veterinary surgeon, who is secretary of the county Armagh Committee of Agriculture and who has had, perhaps, unique experience in reference to the prevalence of tuberculosis in cattle, said that during the past eight years he had tested hundreds of cattle. Since Jan. 1st, 1905, up to the date of the meeting he had had submitted 213 animals to the tuberculin test and 164 failed to withstand the ordeal, while four were doubtful. In other words, one-quarter of the cattle in Ireland were tuberculous. He had no doubt about that and he had no doubt about the test. All diseases should be scheduled. He believed that at the present time children in Ireland were being fed largely on milk swarming with the bacilli of tuberculosis, and in his opinion it was no wonder that the death-rate was high. Mr. Huston's figures showing that one-fourth of the cattle in Ireland are tuberculous, as given before this committee, are much higher than the findings of Geddes, who in 1901–02 was sent by the American Government to examine by means of tuberculin some of the chief breeds of British dairy cattle and who reported in the Nineteenth Annual Report of the Bureau of Animal Industry, 1902 (p. 551), that of 1551 animals tested of all breeds 230, or 14·77 per cent., were rejected. The highest rejections were among the Jersey strain (54·76 per cent.), then came the Aberdeen Angus (28·73 per cent.), then the Ayrshire (24·24 per cent.), then the shorthorn (23·25 per cent.), while in the Dexter-Kerry, Guernsey (on Island), and the Sussex there were no rejections at all.

Presentation to Mr. C. K. Darnell of Bangor, County Down.

At a meeting held in the Medical Institute, Belfast, on July 17th, Mr. C. K. Darnell of Bangor was presented with an address, a piece of silver plate, and a cheque for 300 guineas from a large number of his medical brethren. Dr. J. W. Browne, who presided, having referred to the trying time through which Mr. Darnell had passed[1] and to the universal sympathy felt for him by his medical brethren, called upon Dr. W. Calwell (President of the Ulster Medical Society) who conveyed to Mr. Darnell the deep and warm sympathy, not only of the members of his society, but also of numerous medical men throughout the United Kingdom, who had joined in that presentation. He claimed for Mr. Darnell that he had "exercised a reasonable degree of care and skill"; also honesty of purpose and uprightness of conduct, which seemed to his professional brethren to entitle him to a verdict. It was only the absolutely prohibitive expense that prevented the case from being carried to the House of Lords. Dr. Cecil E. Shaw (secretary to the Ulster branch of the British Medical Association) read the address, to which Mr. Darnell having replied, the chairman made the presentation. A vote of thanks to the chairman, moved by Dr. John Campbell, terminated the proceedings. Letters of apology were read from the following subscribers to the presentation who were unable to be present: Sir William Whitla, Professor J. W. Byers, Mr. J. G. Jefferson (Lisburn), Dr. J. M. Killen (Larne), Mr. J. Rowan (Gargary), Mr. H. Buchanan Murray, Dr. Cathcart, Dr. J. S. Morrow, Mr. T. C. Nelson, and Mr. H. T. A. Warnock (Donegal).

Bangor Nursing Society.

At the annual meeting of the Bangor Nursing Society held on July 19th, the Dowager Marchioness of Dufferin presiding, Professor Byers gave an address on Infantile Mortality and Consumption, pointing out the aid which nursing societies might give in the solution of such pressing health problems. At the conclusion of the address Lady Dufferin expressed her appreciation of Professor Byers's address and her thanks to him for coming to Bangor to help their nursing association.

Visitation of the Royal University of Ireland.

Sir William Anson, Bart., M.P., and the Right Hon. Sir A. M. Porter, Bart., Master of the Rolls, held in Dublin, by command of the King, a special visitation of the Royal University of Ireland on July 20th for the purpose of inquiring into the relations between the University and the Queen's Colleges, and to solve the doubt which had arisen as to the meaning to be applied to certain words in the Act of Parliament as to the holding of prizes, scholarships, exhibitions, or Fellowships, or other emoluments by students of the University. The object of the visitation was to determine a legal point raised in the University which affected a number of the students in the three Queen's Colleges of Belfast, Cork, and Galway. It depended on the proper construction of the University Education (Ireland) Act (1879), Section 9, Subsection 4, which provides that "no student holding any exhibition, scholarship, fellowship, or other similar prize in any other university, or in any college attached to a university, or in any college endowed with public money, shall hold any of the said exhibitions, scholarships, fellowships, or other prizes in the university, to be created by the said charter, without taking the value of such previous exhibition, scholarship, fellowship, or other similar prize into account." By some it was argued that under this section a student who obtained a scholarship of, say, £20 value, at any of the Queen's Colleges and within the 12 months gained an exhibition of £40 in the Royal University, will only be entitled to receive the difference between the two amounts from the Royal University as "the value of the previous scholarship must be taken into account." On the other hand, it was argued that having once received the emoluments connected with the Queen's College scholarship the student had ceased to hold it, and did not come under the operation of the statute. If the first view had been established the holders of the many valuable scholarships in connexion with the Queen's Colleges of Belfast, Cork, and Galway would have been disentitled during the year after winning such to obtain money prizes in the Royal University without deduction, or might even receive nothing in some cases. It also meant, what was admittedly unfair, that scholarships provided by private individuals in the Queen's Colleges—who wished to encourage education—should be treated as if they were scholarships founded by public money. It was contended that it was unfair that the amount of one of these scholarships awarded to a student should be appropriated by the Royal University in the event of that student passing an examination and gaining a scholarship in the Royal University. It was, on the one hand, contended on behalf of University College, Dublin, which it was said had no public endowment, that the proper construction of Subsection 4 was one that would prevent concurrent endowments. On the other hand, it was shown that University College had 15 professors, each receiving £400 a year salary and £6000 for its arts course from the Government, whereas the arts endowment to each of the Queen's Colleges was £2633 a year and all the time University College was entirely free from all the exemptions proposed to be put in force in the case of the Queen's Colleges, while in reality it was a Government endowed College. The visitors decided (and against their decision there is no appeal) that a Queen's College student was not disqualified from holding an exhibition in the Royal University because he holds a Queen's College prize. The matter has from time to time occasioned discussions in the Senate and has aroused much unpleasant feeling among the representatives of the institutions concerned; it is therefore hoped that after this authoritative and final decision the matter will be allowed to drop.

July 24th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Malaria and Yellow Fever in Senegal.

ON July 10th M. Kermorgan read a paper before the Academy of Medicine in which he related the good results obtained by the Dakar and St. Louis Railway Company in its efforts to protect its servants against malaria and yellow fever. The improvement in the morbidity conditions was remarkable. At St Louis for the year 1902–03, before the protection of buildings by metallic gauze shutters, ten railway servants spent 139 days in hospital and were also off work for 44 days. In the year 1904–05, after the instalment of such shutters, the number of days in hospital fell to 13, while the men who were off work without going to hospital numbered only two who were off work for 13 days between them. Similar figures were reported from other stations.

Serious Insanitary Conditions in Madagascar.

At the same meeting of the same society Professor Blanchard gave a most serious account of the widespread and fatal prevalence of malaria in Madagascar. Tananarivo is considered the most healthy place in the island on account of its elevated situation. In 1900 the number of deaths from malaria was 48, in 1903 it was 137, in 1904 the number was 277, in 1905 it had risen to 688, and for the first four months alone of 1906 the deaths had mounted to 980. The population of the town is only 40,000. Professor Blanchard had studied the causes of the outbreak with great care and he had arrived at the conclusion that the primary cause lay in the works for the construction of a road and a railway from Tananarivo to the coast. These works have been the cause of bringing down the Hovas from the healthy plateaux which they formerly inhabited, and where they have up to now been free from malaria, to the low-lying coast lands Here there are two important species of mosquito—pyretophorus costalis and myzomyia funestis—which are carriers of the malaria parasite. As the railway and road are pushed further into the interior the mosquitoes travel with the gangs of navvies and as a consequence the fever also. A similar phenomenon has been observed in Mexico where yellow fever, which was formerly confined to Vera Cruz, crept along stage by stage to the city of Mexico when the railway which unites the two towns was laid down. In the case of Madagascar it is to be hoped that measures of destruction will be taken against the mosquitoes and also that the use of quinine will be insisted upon, for these two methods are the best for combating the malaria scourge.

A New Chair in the University of Paris.

On the motion of M. Roussel the Municipal Council of Paris has just decided to recommend the creation in the Faculty of Medicine of a chair of oto-rhino-laryngology.

A Case of Bubonic Plague.

On July 3rd a sailor at Havre was suddenly attacked by acute colic and nausea and being unable to work went home. In the evening of the same day, as he had become worse, a medical man was sent for who prescribed a certain course of treatment. Next day a hospital physician was called in and saw the patient twice. At his second visit he was able definitely to ascertain the presence of enlarged glands in the patient's groin and that also he showed other symptoms of plague. Three other medical men who were called in consultation confirmed the diagnosis but the patient died. Fluid was taken from the bubo which on being examined also confirmed the opinion of the medical men. Strict hygienic measures were promptly taken by the Mayor of Havre. The rooms occupied by the deceased were turned out, disinfected, and washed down with a solution of perchloride of mercury and all the belongings of the patient were burned.

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[1] Vide THE LANCET, vol. i., 1906, pp. 925, 939, 1213, 1284.

Radium in Gynæcology.

On July 2nd M. Oudin and M. Verchere communicated to the Academy of Sciences the results of some experiments upon the above subject. A glass tube containing two centigrammes of pure radium bromide was inclosed in a uterine sound made of aluminium. This was passed into the cavity of the uterus and was left there for from ten to 15 minutes without any harm resulting. In two patients suffering from uterine fibroids accompanied by severe hæmorrhages the bleeding, which before the treatment had been almost continuous for many months, was entirely controlled. This effect was only to be expected in view of the well-known vaso-obliterative action of radium. Further, the microbicidal action of the radium brought about rapid and complete cure in various cases of long-standing catarrhal metritis and greatly improved chronic cases of gonorrhœal urethritis.

A New Dispensary for the Tuberculous.

A new dispensary has just been called into being on the initiative of Dr. Héricourt, medical inspector of posts and telegraphs. The object of this dispensary is to facilitate compulsory hospital treatment for tuberculous employees in this department who are only too many in number.

Chloroform Hallucinations.

A singular action for divorce has just been settled by the Tribunal of the Seine. The wife of a medical man wished to divorce her husband. She said that one day her husband went to a friend's house to operate upon the friend's nurse. When the girl awoke from the anæsthetic she said that she had seen the medical man embracing her mistress. In defence the medical man called Dr. Brouardel and Dr. Debove who both said that patients under an anæsthetic were very wont to develop hallucinations which endured after they woke up. The court agreed with this evidence and threw out the wife's pleadings on these grounds. Other indisputable evidence was, however, brought and the wife of the medical man was granted her divorce.

The Transmission of Infectious Diseases by Domestic Animals.

M. Remlinger and M. Osman Nouri, at a meeting of the Hospitals Medical Society held on June 20th, gave an account of the following case of infection. The case occurred in a family in which hygienic precautions were duly observed. The family returned to town from their country seat because scarlet fever had broken out in the neighbourhood. Some days later one of the daughters, aged 16 years, showed all the symptoms of a mild attack of scarlet fever. She was isolated and the disease ran its usual course. On the twentieth day of the illness a younger sister returned home and the strictest precautions were taken to prevent her catching the infection from her sister. 12 days after the return of the younger sister she sickened with scarlet fever. The attack was mild and the patient recovered without any complications. Every care had been taken to prevent any servant who attended on the elder sister from having anything to do with the younger one and nothing that the elder used was also used by the younger. The infection in the case of this latter patient was, however, traced to the cat which had been in contact with both patients.

July 24th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Italian Coöperation at the Recent International Meeting of the Red Cross at Geneva.

THE Geneva Convention for the relief and care of the sick and wounded in war has always had special interest for Italians who even go so far as to claim priority in the conception of the philanthropic movement, though conceding, of course, that the Swiss were the first to "put it on wheels." Italy was therefore exceptionally well represented at the recent Conference of the coöperating parties to the Convention—a Conference held at Geneva in the historic "Alabama" Hall of the Hôtel de Ville and marking, on its dissolution a few days ago, a distinct advance on the programme agreed to by its predecessors. The Federal Council had compiled, on the basis of deliberations ratified at the Hague Congress, a series of questions to be examined by the Conference and these, 14 in number, dealt with the following subjects: (1) the wounded, the sick, and the dead; (2) the medico-chirurgical *personnel;* (3) the medico-chirurgical *matériel;* and (4) signals, abuses of the same, and general questions. On the motion of his Excellency M. Edouard Odier, Swiss Minister at the Court of Russia, elected by acclamation President of the Conference, these four groups of subjects were submitted to as many committees formed from the delegates of the nationalities represented, whose findings finally came up for ratification in plenary assembly. To begin with, the protection accorded by the Convention of 1864 to the sick or wounded in war without distinction of nationality was extended to all persons officially attached to the Army Medical Service; in other words, to all officially charged with picking up, transporting, and tending the sick or wounded, to the working staff of the several medico chirurgical bodies, and to the ministers of religion. To this provision, formally re-stated in terms more juridically exact than previously, exception was taken on the ground that the Geneva Convention could guarantee no real protection to the medico-chirurgical *personnel* as above defined, and a motion was introduced to exclude the said *personnel* from the Convention. An animated discussion followed, in which a powerful vindication of the provision was given by General Randone, Inspector-General in the Italian Army Medical Department, and, as a consequence, the motion was rejected well-nigh unanimously. On the important question of voluntary aid (*soccorso volontario*) the Conference came to a conclusion more precisely defined than heretofore and its terms ran thus: "We assimilate to the official *personnel*, to be under the protection of the Convention, the *personnel* of the societies of voluntary aid duly recognised and authorised by their Governments, the said *personnel* to be employed in the medico-chirurgical formations of the armies, under the reservation that it will remain subject to the military laws and regulations." Minor questions cropped up in the discussion of this provision but without affecting it substantially, one point, however, standing out with special clearness—viz., that as a direct consequence of the protection accorded by the Convention to all the *personnel* officially attached to the sick or wounded in war, the said *personnel*, if it fall into the power of the enemy, will not be treated as "prisoners of war." As to the moveable *matériel* of the Red Cross service, it was unanimously agreed that it ought to be treated differently from the permanent military hospitals belonging to the State and planted almost invariably on national territory. These last must remain subject to the laws of war, while their medical purpose will always be respected; the moveable *matériel* of the Red Cross, on the contrary, will be in all circumstances inviolable—a conclusion which, again, the experience and the arguments of General Randone powerfully reinforced. Thereafter the Marchese Maurigi, another of the Italian delegates, secured the reaffirmation of the principle already recognised at the Hague Congress that benevolent institutions maintained by such organisations as the "Opere Pie" of Italy shall be considered as private property and not come under military law. The treatment of the wounded was another question more stringently dealt with than at previous conferences, the conclusions discussed and formulated all tending to minimise the risks to the victims referred to while securing greater facilities for the emissaries of the Red Cross. As to the search for the wounded and their protection, equally with the dead, against plunder and ill-usage, the conclusion formulated sets forth that after every combat the master of the field of battle will take the necessary measures *ad hoc*. The said master will equally take upon himself the inhumation or incineration of the dead, but only after an attentive examination of their bodies. Besides, it will be his duty wherever possible to send to the authorities of their native country or army the insignia or regimental marks of identification found on the bodies and a specific statement of the condition of the sick and wounded. Finally, the regulations affecting transport, particularly "convoys of evacuation," were once more reviewed and brought into closer correspondence with respect for the sick and wounded on the one hand, and with the military law on the other, the transport service (wagons, trucks, &c.) not being available for other than the special purposes of the Red Cross. And so the conference rose, having fulfilled its beneficent programme with a more circumspect eye to the interests of the immediate sufferers from war than was possible to its predecessors to whom the experience of later military developments was necessarily denied.

"*Drowned at Sea.*"

One of the most brilliant graduates of the Venetian school, Dr. Antonio Dal Fabbro, who had chosen the Congo as his professional field, went down (so I have just learned from Verona) with the steamer that was conveying him to Kassai. Of his 80 fellow passengers only three saved themselves by swimming, while Dr. Antonio, though a strong swimmer, could not avail himself of his powers, having been in his cabin at the moment when the vessel struck. He was but 29 years of age and had taken the degree of Doctor of Medicine in 1899 with special honours for his thesis on "Progressive Paralysis." He subsequently settled at Banana in the Congo and remained in practice for three years. In 1904 his father, Professor Francesco Dal Fabbro, himself a distinguished consultant of the Venetian School, fell ill and Dr. Antonio returned to his native Verona to assist him. In the autumn of 1905 he went back to the Congo, where, as already stated, he met his death off Kassai. His friends and colleagues have now raised a sum sufficient to endow a bed associated with his name in the wards of the "Colonie Alpine" hospital—a worthy tribute to a physician whose post graduate studies culminated in a "diploma di perfezionamento" in gynæcology and obstetrics.

The Health of the Pope.

Concerning Leo XIII. it used to be asked, "If sensational paragraphs about his health should cease to be a *locus communis* in journalism, what would the continental quidnunc do for a livelihood?" His successor, Pius X., has barely been three years in the Holy See and already he seems qualifying for a similar rôle. The other day he gave audience to a party of the faithful, when it was remarked that he had a finger bandaged. That very evening it was announced in various of the European capitals that His Holiness had had another attack of the gout—not in the knee this time. What are the facts? Some 24 hours previously he had been at his escritoire, and in the act of removing from a penholder a rather stubborn nib the latter had run into his finger just under the nail. Having washed the puncture and dressed it himself without disturbing anyone His Holiness next morning had a visit from Dr. Lapponi, who undid the dressing, re-washed the wound, and then re-bandaged it *secundum artem*. So much for the "fresh attack of gout—this time in the hand!"

July 22nd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Rupture of an Aneurysm of the Aorta into the Vena Cava.

AT a recent meeting of the Medical Society Dr. Herz showed a man giving a history to the effect that he suddenly felt something give way in his breast and that the skin of his head and face became cyanotic shortly afterwards. When he was brought into hospital there was extensive œdema of the face, the upper part of the thorax, and the upper limbs, with dark-blue discolouration. The external jugular vein, although not distended, was well filled and had a rhythmical systolic pulsation; on the right side of the sternum there was a prominence in which pulsation appeared now and then. In this region there was a triangular space where a loud high-pitched whistling sound was audible. Under digitalis the œdematous swellings were reduced in size. The diagnosis of rupture of an aortic aneurysm into the vena cava was proved to be correct by the necropsy which took place just a day before the next meeting of the society and Dr. Herz was able to show the aneurysm at the meeting. The cyanosis and the whistling noise, together with the symptoms of pressure and pulsating veins, have been present in all cases of a similar type reported hitherto.

Cancer Research.

In order to obtain as full information as possible on the mode of propagation of cancer, its distribution amongst the population of certain districts, its occurrence in the successive occupants of certain houses, the possibility of infection, and the alleged increase in the number and malignancy of the cases a collective investigation by all medical practitioners has been arranged, and the instructions which are to be sent out to all members of the profession throughout the Austrian empire have been got ready. An attempt will be made to show separately the different groups of organs attacked by the disease by appealing to the general practitioners as well as to the specialists, but a novel feature will be an endeavour to prevent a multiple notification of the same case by the family practitioner, the specialist, and possibly the surgeons and other medical men who might be consulted before an operation takes place. Medical men will be requested to ask the patients whether they have been already examined, and if so by whom, and to supply these data, together with the name of the patient, to the central committee. This will, of course, greatly increase the labour of tabulating the returns, as the names of both the previous medical attendants and the patients will have to be looked up several times in the register but the gain in the accuracy of the figures which will be obtained in this way will be well worth the extra expenditure of time and trouble. Both medical men and veterinary surgeons are also invited to give attention to cases of malignant growth amongst domestic animals and cattle; valuable information on this subject might be collected but the difficulty of making post-mortem examinations on animals, and especially on animals of considerable age, is almost insuperable, whilst the results derived from slaughter-houses are not worth much because the animals killed there are comparatively young.

A Case of Wrongly Diagnosed Abdominal Pregnancy.

Pregnancy outside the genital canal is a rarity well worth recording. Therefore Dr. Lindenthal had a very attentive audience when he gave the details of such a case before the Gynæcological Society and was able to show not only the fœtus but also the anatomical preparation and the living patient who supplied the interesting abnormality. It appeared that the woman in question had been advised by her medical attendant to undergo an operation and when she came to the hospital the diagnosis of an intra-uterine pregnancy and an intra-ligamentary cyst of the left ovary was made. The examination showed a large uterus, displaced by a large cystic swelling towards the right side, but on opening the abdomen the uterus was found not pregnant although it contained a membrana decidua, one-third of an inch thick, and had hypertrophied walls. The real cause of the cyst was a living fœtus, ten inches long, and the sac in which it lay had opened up both layers of the ligamentum latum, the mesosalpinx, and the meso-rectum. With the naked eye it could be seen that the ovary and the tube had nothing to do with the sac and microscopic examination confirmed this evidence. The tube ran across the upper surface of the ligament, both its openings were free, and the lumen was pervious. The ovary was situated on the lower end of the sac, compressed into the shape of a flat plate. As regards the mode of development of abdominal pregnancy, three explanations are possible—namely: (1) re-implantation of the ovum after rupture of the tube; (2) a direct implantation of the ovum under the serosa of the parietal peritoneum; or (3) arrest of the ovum on the fimbriæ, with subsequent growth between the two layers of the peritoneal folds. Only the latter two ways are probable, according to the experience of authorities on the subject.

A Proposal to Tax Medical Prescriptions.

Endeavours are being made to increase the funds at the disposal of the medical councils and the medical provident institutions, and among the schemes which have been suggested for the purpose there is one which has deservedly found great approval. Starting from the consideration that the public derives the largest benefit from the hard work done by the medical profession the idea that the public should contribute to the funds necessary for the internal organisation and the benevolent agencies of the profession is very attractive. It has therefore been proposed that money should be raised for this purpose by affixing to each prescription every time it is made up a stamp having the value of one kreutzer (less than a farthing). The stamps would be obtained by the pharmaceutical chemists from the various medical councils and boards and it would be unlawful to dispense any prescription without such a stamp. Taking the number of practitioners in Austria at 10,000 (in reality there are many more) and estimating that each practitioner writes daily only one prescription this would bring in at least £3000 a year. The money thus realised would be laid out on old age pensions, grants to orphans and widows, and the maintenance of certain medical institutions.

A Unique Case of Embolism of Air combined with Embolism of Septic Material.

At a recent meeting of the Medical Society Dr. Richter showed some pathological specimens obtained from a woman 22 years of age, a primipara, who after a miscarriage at the eighth month and slight septic fever suddenly became collapsed whilst partaking of food and died in a few seconds. At the post-mortem examination it was found that the right ventricle of the heart was greatly distended with gas and when it was opened under water a large number of bubbles of gas of the size of a walnut came out of it. The pulmonary artery was filled with hard greyish-red clots measuring as much as three inches by half an inch. The source of both emboli was found in the uterus, from the cavity of which a probe could be passed without encountering any resistance whatever through the site of the placenta into a vein, its path being an aperture about a quarter of an inch in diameter which led directly to the plexus uterinus and the vena cava. The last-named vessel, as well as some other veins, were filled with atmospheric air, whilst the majority were hard and contained thrombi and other septic material. The uterus was very soft, its involution was making little progress, and the cervix admitted two fingers. No doubt the exertion of sitting up had loosened the thrombosed masses in the uterine veins and had produced embolism of the pulmonary artery. When the woman sank backwards the suction produced by the uterus opening or sinking into the pelvis allowed air to enter the uterus from which it passed into the veins and ultimately into the right ventricle. In making a necropsy care must be taken that gases produced by decomposition or air entering the subclavian vein during the act of removing the sternum be not confounded with air entering the vessels or the heart during life either as a result of surgical operations or injuries or through the uterus.

July 23rd.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Sea Baths.

IN suitable circumstances there can be nothing more refreshing and exhilarating than a bath on the magnificent shores of the Bosphorus, where the mightily heaving current is ever deep and pure and cool. Unfortunately, bath pavilions are indiscriminately erected here without taking the necessary precautions as to the hygienic conditions of the site; indeed, it often happens that a sea bath is established in the proximity of drains. I learn that the Ottoman Government has decided to remedy this unsatisfactory state of affairs and that it has given instructions to the Imperial Medical School to take all the necessary steps in order to prevent further construction of sea-bath pavilions in unsuitable or unhealthy places. The Imperial School, in conjunction with the prefecture of the city, will appoint a sanitary commission the duty of which it will be to select the proper sites on the Bosphorus, on the Sea of Marmora, and on the Golden Horn, where bath establishments should be erected. The construction of the public pavilions will receive more attention, so that they may comply, not only with the exigencies of æsthetics, but also with those of hygiene, and proper inspection of bathing towels and garments will be exacted.

The Maternity Hospital.

The Sultan has authorised the opening of a subscription for the funds necessary to construct a maternity hospital in Constantinople and has started the collection with a liberal donation.

Another Bacteriological Institute.

It has been decided to construct a bacteriological institute in connexion with the Veterinary School. The foundation-stone has already been laid last week. The Government will furnish this establishment with the necessary material and instruments for the production of diff-rent antitoxic sera. The latter will be produced in sufficiently large quantities to be able to supply the whole extent of the Ottoman Empire and to combat the various epizootics which from time to time attack the provinces, sometimes with great violence. The Minister of Agriculture, Selim Pasha Melhamé, has taken a laudable interest in the new establishment.

The Industry of Rose Essence.

It has been discovered that the distillers who are occupying themselves with the industry of rose-essence production in the vilayet of Hudavendighiar have been in the habit, up to now, of mixing with the pure essence of roses all sorts of extraneous matter. In consequence of this the industry has fallen somewhat into disrepute. The commercial authorities have therefore taken the most energetic measures to prevent further falsifications by the provincial distillers. A special commission has lately visited the distilleries of the above vilayet and has taken the necessary steps against fraudulent practices.

July 13th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Indian Nursing Association.

THERE has been felt for many years a great want of skilled European nurses for Europeans in Northern India and an attempt made a few years ago to establish an association unfortunately fell through. The scheme has recently been taken up again and is now receiving more official support. It is proposed to provide sufficient English trained nurses in the various provinces of Northern India and Burma for all classes of Europeans. Other outlying provinces where no regular nursing organisation now exists will be included. The proposed association will be controlled by a central committee containing representatives from each province. There will also be provincial committees for local control. The fees to be charged for the services of these nurses will be on a sliding scale as it is desired to place skilled nurses at the disposal of both rich and poor at a moderate rate and commensurate with their incomes. Thirty-eight nurses with a chief lady superintendent and two lady superintendents will at first be employed. The value of this scheme can only be realised by those who know India and who have been able to recognise that many valuable lives have been lost through want of proper nursing, more especially in outlying districts. The want of trained nurses has been the cause of much suffering.

The Strike of Students in Lahore.

The remainder of the medical students on strike in Lahore have submitted unconditionally and have petitioned to be allowed to resume their studies.

Plague in the Burma High Court.

The Burma Chief Court has had to be closed in order thoroughly to be disinfected and cleaned. On June 23rd several dead rats were discovered in the record rooms behind the records and under the judges' platforms and examination has revealed the fact that the rats found have plague bacilli. The interruption of the judicial work of the courts is no small matter and the sanction of the Lieutenant-Governor had to be obtained by wire. Plague still lingers in Rangoon; in fact, the deaths are increasing in number, and a recrudescence of last year's outbreak would not be surprising.

The Plague Epidemic.

The epidemic throughout India has sunk to insignificant proportions, only 1904 deaths with 2224 seizures being reported for the week ending June 6th, more than half of which occurred in the Punjab. The mildness of the epidemic this year throughout the whole of India is remarkable and it certainly cannot be attributed in any way to the plague measures adopted. It will be remembered that in the Bombay Presidency last year a very marked amelioration occurred, only 71,000 deaths being recorded, as against nearly 300,000 in 1903. A curious feature in the figures is that the decline was greatest in those districts which had suffered most severely in past years.

The Adulteration of Opium.

It may interest pharmacologists to know with what materials opium is adulterated in India. An important case tried at Hyderabad brought out the fact that "sangzira" was mixed with opium in large quantities, that the mixed opium was soaked in linseed oil, and that finally "amul" was added. It was also admitted that "bhang" was frequently put in and gum was utilized to unite the ingredients and make them hard. Several witnesses said that strychnine and black sand were used in addition to some of the other adulterants.

Sickness in the Andaman Islands.

The administration report concerning the penal settlement of the Andaman Islands always contains points of medical interest. These islands are not particularly healthy as dysentery, pulmonary tuberculosis, and malarial fevers claim a heavy toll. The percentage of deaths from pulmonary tuberculosis is enormous (22·27 on the total population of the islands). There were 100 deaths amongst the 14,118 prisoners. Strict segregation of phthisical cases has been recently enforced but the general prison ccommodation is deficient. In the temporary thatched arracks which had to be erected only 36 square feet per ıan was allowed and the phthisical wards of the hospitals rere overcrowded. New barracks, however, have since been onstructed. Malaria caused 14,455 admissions to hospital. he anopheles mosquito flourishes in the islands but gangs ave been actively employed and a great reduction of these nsects has been effected. Both Megarhinus and Aedes pecies are found in addition.

June 29th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Hospital Affairs.

THE Salvation Army has established a new hospital in Melbourne which was formally opened by his Excellency the Governor of Victoria on May 29th. The institution is designed to take an intermediate position between public hospitals and private hospitals and nursing homes. It will take in all classes from the rich to the extremely poor, but mostly those who would simply pay the actual expenses. Apart from the medical officers all the work will be done by Salvation Army officials. A large private residence has been adapted to hospital requirements and accommodation provided for 46 patients, including maternity cases. Before the ıospital was opened some difficulty arose as to its registraion. According to law an application to register a private ıospital by other than medical men must be made to the local municipal council, which in this instance refused to register. Then an application was received from Mr. A. Honman, who is one of the medical officers of the new establishment, to be registered by the Board of Health in respect of this hospital. He was called before the Board and asked whether the institution was not conducted by the Salvation Army. He rather evaded the question, replying that he was the *boná-fide* applicant for registration. Now the Salvation Army has applied to the Board for registration, which the board has refused, as "the Board could not be a party to any such irregular procedure as that suggested, as that would imply that the Board viewed with complacency the using of Dr. Honman as what might not altogether unfairly be characterised as a stalking horse in regard to this matter."—At a special meeting of the directors of the Royal Prince Alfred Hospital, Sydney, the report of the secretary upon the result of his investigations into hospital administration in Europe and America was considered. The following recommendations of the secretary were agreed to:—

> 1. The establishment within the hospital area of a Royal Prince Alfred Hospital Sunday Fund. 2. The establishment of a Ladies' Auxiliary Society to make and provide linen, &c. 3. The establishment of a hospital alliance of young people to undertake particular special duties. 4. The establishment of a collecting organisation for outside areas. 5. Application to be made to the Admiralty, through his Excellency the Governor, for a share of naval patients. 6. Reorganisation of the system of receiving casualty patients and making the casualty department an adjunct to the out patients department. 7. Registration of the names and diseases of all out-patients on the card system. 8. Payment by out-patients, except in extreme cases of destitution, as follows:—(a) 3d. for each supply of medicine; (b) 3d. for each new bottle supplied; and (c) 2d. for each surgical dressing. 9. Reorganisation of accommodation for the out-patient departments and the expenditure of £150 on the consulting rooms and equipment. 10 Adoption of the card system of registration for the following purposes: (a) registration of in patients; (b) registration of out-patients and their diseases; (c) registration of diseases and operations; (d) registration of subscribers.

The following appointments to the medical staff of the Royal Prince Alfred Hospital have been made: honorary physician, Dr. G. E Rennie; honorary surgeon, Dr. Charles MacLaurin; honorary medical officer in charge of the lock department, Dr. William J. Munro; honorary medical officer in charge of medical gymnastics department, Mr. Reuter E. Roth; honorary assistant physician, Dr. J. I. C. Cosh; honorary assistant surgeon, Dr. J. Morton; honorary assistant ophthalmic surgeon, Dr. J. C. W. Halliday; and honorary assistant gynæcological surgeon, Dr. Fourness Barrington.—At a special meeting of the subscribers to the Women's Hospital, Melbourne, certain amendments in the by-laws relating to the appointment of the honorary medical staff were passed. It is now provided that the committee instead of the subscribers should elect the honorary medical staff consisting of 12 officers. In addition to the 12 honorary medical officers appointed the committee was to have discretion to appoint as a member of the staff *ex-officio* the lecturer on obstetrics at the University of Melbourne. With the exception of this officer, whose appointment was to be for such time as the committee might think fit, the honorary medical staff was to be elected for a period of seven years. On attaining the age of 60 years any honorary medical officer was to cease to hold office in the hospital, but the alteration was not to lengthen or shorten the terms of office of any honorary medical officer appointed before the by-law came into operation. Provision was also made to insure that candidates should be properly qualified.

Use of the Title of "Dr." by a Dentist.

At an open court held by the Dental Board of New South Wales under the Dental Act Mr. Bradley was charged with "infamous conduct in a professional respect" by using a brass plate with the prefix "Dr." to his name, adding thereto his university degree, "B.D.S." The question was raised whether a dentist holding a bachelor's degree was entitled to call himself "Dr." by analogy to the similar practice in the medical profession; and, if not, whether it amounted to "infamous conduct" under the Act. The court gave the following decision:—

> That the conduct of Mr. Bradley in assuming the title of Doctor, he having only obtained the degree of Bachelor of Dental Surgery, is such as this board condemns. Such conduct, however, appears to have been based upon a supposed claim of right to establish a practice similar to that which obtains in the medical profession. In the circumstances, the board will take no action in this case. The board, however, reserves to itself full liberty of action if, in view of the opinions now expressed, the practice is persisted in by Mr. Bradley or any other registered dentist in this State.

Action against Mr. Howse: Appeal Refused.

It will be remembered that Mr. Neville R. Howse, V.C., appealed to the Full Court against the decision given in the action against him, in the case where a patient was burned by hot bottles, and the Full Court decided in his favour. Application was made for an appeal against the decision of the Full Court to the High Court but has been refused as the case involves questions of facts, not of law. Mr. Howse is thus to be congratulated on the finally successful issue of a very trying case.

Action for Burns by the Tallerman Bath.

At the Sydney district court on May 21st an action was brought against the proprietor of an establishment for providing electric baths, Tallerman treatment, &c., for burns received during treatment. The judge said on the evidence before him it was perfectly clear that the plaintiff had been burnt while under treatment. Ordinarily, it would appear from the evidence that the defendant conducted her business in the most careful way but the evidence in this case pointed to the fact of the plaintiff having been burnt on this particular day. There was no doubt the plaintiff had suffered very serious loss. He had practically been out of employment for several months and in addition had to pay 20 guineas for medical treatment, besides incurring other expenses. He gave a verdict for the plaintiff for £130.

June 10th.

FREEMASONRY.—The consecration of the "Dr. James Griffith Hall Lodge" took place on July 20th at the Masonic Hall, Swansea. There was a good attendance, amongst those present being Lord Llangattock, the Provincial Grand Master of South Wales.

MEDICAL FEES IN ST. PETERSBURG.—The municipal medical officers are extremely discontented, says the *Novoe Vremya*, with the rates of payment fixed by the town for night visits and 42 of them have petitioned the sanitary committee to raise the fees in the case of those able to pay to from 4*s.* to 6*s.*, and to from 1*s.* 6*d.* to 2*s* for those of limited means. They have added another request to this one—namely, that Dr. Gordon (who is alleged to have been unjustly dismissed by the sanitary committee) may be reinstated in his position.

MEDICINE IN TORONTO.

I.

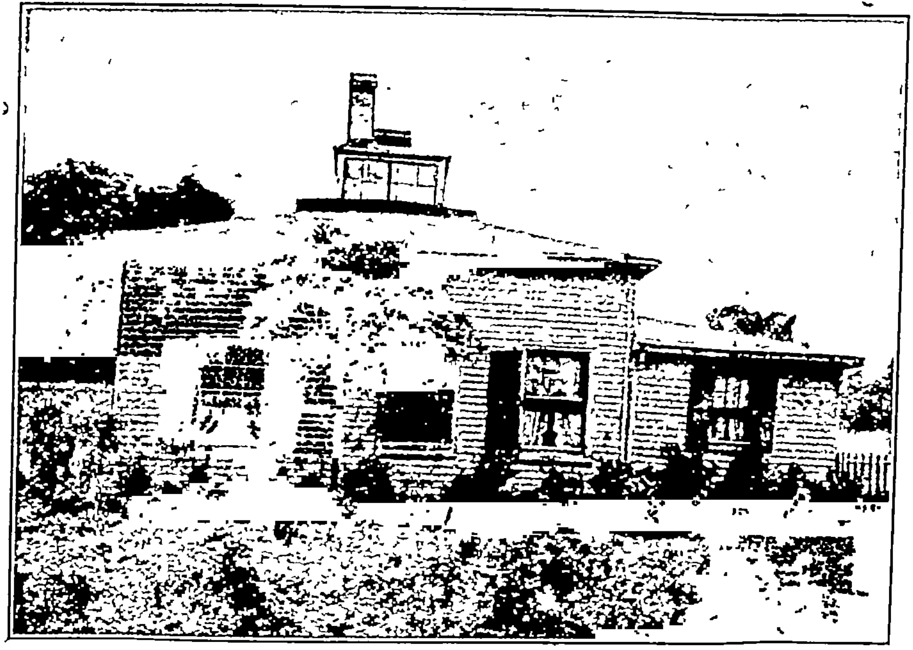
The Early History of Medicine in Ontario; A Few Notes on Some of the Pioneers.

In view of the forthcoming meeting of the British Medical Association in Toronto it will be of interest to the readers of The Lancet, whether they intend to visit the beautiful city on Lake Ontario in August or not, to learn something of the history of medicine in Ontario, as Upper Canada is now called. A perusal of this short series of articles will show that the medical schools of Ontario have gone through troublous times, as might be expected since their history runs coincident with both the development of scientific medicine and the development of Canada as a country. While Canada was working its way from a collection of backwood settlements to a highly organised Dominion, and thence to its present proud position among the most promising countries of the world, medicine almost simultaneously has evolved from empiricism, through the various stages of performance marked by individual great achievements, to its present state, one of high efficiency but especially one of boundless promise. The two evolutionary processes have progressed in Canada hand in hand and make the study of early medicine in Canada particularly interesting. The story also shows that the battles for reform in great constitutional affairs and in medical politics have ended, as they should, and as the story of our civilisation shows that they almost invariably do end, in the complete triumph of the cause of progress. At the present time the standard of medicine in Canada generally is very satisfactory, commensurate, indeed, with the place which the Dominion is certain to hold in the world's history, while medicine in Ontario forms a particularly instructive example of social development. The writer of the following chapters has not dwelt with any emphasis upon the suitability of Toronto as a meeting place of the British Medical Association, taking it for granted that the beauty of the city and its site are known by repute to all of us. Standing on the shores of its splendid inland sea, wonderfully endowed by nature with all the qualities that make a great human settlement sanitary as well as beautiful, in close connexion with the vast and stimulating western republic, and linked up by rail and water with boundless hinterlands in all stages of development and fertility, Toronto could hardly escape becoming an important capi The city has had its waves of depression following its peri of too previous exaltation, many fortunes have been lost well as made within its undefined boundaries, there h been disappointments as well as triumphs, but far-sight men have never felt in doubt as to the ultimate hi destiny of Toronto, and those who believe that the strai road to a future of grand prosperity has now been reach number among them some of the shrewdest heads in empire.

We are here, however, concerned only with the history the development of medicine in the colony.

Up to the year 1776, the time of the American Rebelli the province of Ontario was a dense wilderness. Its surv was begun in 1783 and in the following year its settleme commenced. The medical men who practised among t English people residing in Canada immediately after t rebellion were almost entirely British surgeons belonging the navy or the army, and all that has come down to us co cerning them will be found in a very interesting boo "The Medical Profession in Upper Canada," written Dr. W. Canniff, which has been freely drawn upon he With the increase of British settlers in Ontario the supp of service medical men was found to be insufficient. Some surgeons retired from the service and took up their abode in the province, while a few came out from the old country and made their home in Upper Canada.

Fig. 1.



he First Medical School in Upper Canada.

The first Act relating to medicine in Canada was passed in 1788 and shows an early appreciation of the benefits of a properly organised professional service. A copy of this Act may be seen in the Toronto Public Library and its title reads in part as follows :—

> An Act or Ordinance to prevent persons practising physic and surgery within the province of Quebec, or midwifery in the towns of Quebec and Montreal without licence.

(It must be borne in mind that Upper Canada was at that time a portion of the province of Quebec.) The Act went on to state that to obtain such a licence a person must have been examined and granted a certificate by medical men appointed for the purpose by such personages as the Governor or Commander-in-Chief of the province. Surgeons of the navy or the army or any persons who had taken a medical degree in any University were exempted from the provisions of this Act.

The next governor of Upper Canada was Peter Hunter, ated to be one of the numerous brothers of the famous ohn Hunter, in the year following whose death a second edical Act was passed which repealed the former Act. So ar as medical legislation was concerned after the repeal of he first Act matters were at a standstill up to the year 1815, vhen another Act was passed entitled "An Act to Licence ractitioners in Physic and Surgery." This Act was enacted y, and with the advice and consent of, the Legislative ouncil and Assembly of the province of Upper Canada and vas a lengthy document the regulations in which were airly strict and comprehensive. It appears, however, not o have been very practical, for in 1815 the number of ualified medical men in Upper Canada was about 0 but there were many unqualified men and a considerable number of quacks. The Act passed in 1815 was epealed in 1818 by a new Act. This Act was the strictest s yet enacted and was indeed the first effective step in he direction of placing the medical profession of Upper anada upon a proper and dignified basis. The most mportant provision of this Act was that ordering the ppointment of a medical board empowered to examine, and f considered fitting to grant licences to, those desirous of ractising medicine in Upper Canada. This board came nto force on Nov. 27th, 1818, and on Jan. 4th, 1819, the oard was convened at York, as Toronto was called at that late in its history. The records of this board are contained n two volumes now in the custody of the Registrar of the ollege of Physicians and Surgeons of Ontario and its ninute books provide very instructive and interesting reading. The board appears to have been mindful of its duties nd responsibilities so far as may be gathered from the ninutes. For example, it is recorded that a large number f would be practitioners of medicine were disqualified as nfit, though the details of the examination are not forthcoming. Probably general evidence as to training was ccepted

A minute of Oct. 8th, 1819, is especially interesting, as t contains an account of the proposals to build the first ospital in Toronto. The announcement with regard to this matter was as follows:—

> Proposals for building by contract a brick hospital in the town of York will be received at the Post Office by William Allan, Esq, where a plan, elevation, and particular description of the intended building may be seen and any information respecting it obtained

Referring to this building Dr. Canniff says that it is uncertain how soon thereafter the hospital was erected, but reference is made to the hospital in the weekly register for 1822 so that no very prolonged delay took place.

With regard to this building the late Dr. Scadding, rector Holy Trinity, Toronto, records in his interesting book 'Toronto of Old" that—

> The old hospital was a spacious, unadorned, matter of fact, twotorey structure of red brick, one hundred and seven feet long and ixty-six feet wide. It had the peculiarity of standing, with its sides recisely east and west, north and south. At a subsequent period it onsequently had the appearance of having been jerked round bodily, he streets in the neighbourhood not being laid out with the same precise regard to the cardinal points The building exhibited recessed galleries on the north and south sides and a flattish hipped roof The interior was conveniently designed

The Medical Board at its meeting in April, 1832, spoke of the hospital in terms which show that the institution was recognised at once as a centre for medical education, the following being the minute:—

> The York Hospital is now in successful operation and affords to students daily opportunities of observing diseases and their treatment, and they feel it a duty to point out to students that it is at such institutions they can best acquire, at the bedside of the patient under experienced practitioners, the practical information most especially befitting them to render professional services to their fellow creatures.

In 1832 Dr. John Rolph, a most original and interesting man to whom future reference will be made, was commissioned a member of the Medical Board and undoubtedly exercised great influence upon its deliberations. In the same year Toronto was devastated by an epidemic of cholera, with which the members of the Medical Board, in their capacity as advisers to the Board of Health, showed themselves able to cope most effectually. Many of the views expressed by them 58 years ago might have been uttered by a modern sanitarian so clearly are the benefits of hygiene and the results of its neglect laid down.

In the year 1837 the Medical Board, which had in the meantime been reconstructed, carried on a lengthy correspondence with the authorities of King's College (now the University of Toronto) and the Lieutenant Governor of the province as to the advisability of establishing a medical faculty at that seat of learning. The board strongly recommended the creation of such a faculty, but its views and those of the Lieutenant-Governor and his advisers clashing on many important points the scheme fell through. Eventually in 1839 the College of Physicians and Surgeons of Upper Canada was founded, the majority of the members of the Medical Board having been appointed Fellows. Soon after the incorporation of the College of Physicians and Surgeons its governing body made overtures to King's College to coöperate and conjointly to establish a school of medicine. The authorities of King's College, however, refused the offer. In 1840 the legal status of the College of Physicians and Surgeons was called in question, and in January, 1841, the Act establishing the school was disallowed. During its brief and somewhat chequered existence the College of Physicians and Surgeons of Upper Canada undoubtedly deserved well of the public and of the medical profession. Dr. Canniff bears the following testimony to its work:—

FIG. 2.

Dr. Christopher Widmer.

> The efforts of these comparatively early medical men to raise the character of the profession, to establish a Canadian Medical School that the young men of the province should not be obliged to go abroad for medical instruction, are worthy of all commendation. Nor may it be supposed that their work was in vain. The seed sown by them has resulted in a rich crop, reaped by the later generations of our profession in the province. No one can read the Transactions of the College of Physicians and Surgeons of Upper Canada without being impressed with the fact that the governors had lofty aims and the interest of the profession fully at heart, at the same time looking to the welfare of the public, and it must not be forgotten that their work was performed more than half a century ago.

The dissolution by legal methods of the College of Physicians and Surgeons brought the Act of Parliament under which the old Medical Board was formed again into force. It once more began its sittings and in January, 1842, presented a memorial to His Excellency the Governor General of Canada as Chancellor of the University of King's College, praying that a Faculty of Medicine might be established in that University. The Lieutenant Governor acceded to this request, while in February of the same year a resolution was passed by the council of King's College stating that for the purpose of affording the necessary facilities to students in the Faculty of Medicine it would be advantageous if the Toronto General Hospital were for the present utilised. The council proposed accordingly to devote an annual sum to the maintenance of beds for a certain number of patients in addition to those which the funds of the hospital trustees already enabled them to provide. Thus after long and repeated efforts a medical school was established in Upper Canada, in proper connexion with a university faculty and with a hospital where teaching facilities could be obtained.

The report of the newly formed medical faculty, made at the end of December, 1843, recommended among other measures that immediate arrangements should be made whereby the professors of the medical faculty should have either the exclusive medical superintendence of the hospital or a certain number of wards reserved for their sole use. It was ordered that for the present the rooms occupied as the museum and workshop should be the apartment wherein the school of medicine should be conducted and that the business of the school should commence there on Monday, Jan. 15th, 1844, and that a frame building erected on the north or west side of the western wing would be sufficient for the above purposes. This building was to be erected forthwith. This plan was carried out as recommended and the first building in connexion with the first university medical school of Upper Canada was erected in 1844. (Fig. 1.)

Among Canadian fathers of medicine and surgery, to turn to the personalities of the pioneers, the foremost place is without doubt due to Dr. Christopher Widmer. (Fig. 2.) To Dr. James Henry Richardson, himself one of the best known medical men to this and a past generation in Toronto, we are greatly indebted for personal reminiscences of Dr. Widmer and of other early Canadian medical practitioners. Dr. Widmer was a Member of the Royal College of Surgeons of England and before coming to Canada had been staff-surgeon attached to the 14th Light Dragoons. He served through almost the entire Peninsular war and came to Canada 1812–15. He commenced practice in York (Toronto) about the year 1816 and died there in 1858. As a surgeon he is reported on all hands to have possessed the highest skill, and he took the greatest possible interest in all appertaining to his profession. He was a member of the Upper Canada Medical Board from the time of its inception in 1819 and chairman from 1823, and the guiding spirit of the general hospital from its foundation. He was a public-spirited citizen as well as a really great surgeon. Dr. Richardson's first recollections of Dr. Widmer date from 1837 and he describes him as a small and wiry man, with a somewhat unhappy look but with keen eyes. In speech he was abrupt and commanding, given to the use of strong and forcible language, but withal extremely kind-hearted.

Of all the early medical practitioners in Toronto perhaps, on the whole, the most gifted and celebrated was Dr. John Rolph. He had a stormy career, for he lived in stirring times and was himself a moving spirit in the Mackenzie rebellion of 1837. Dr. Rolph in his day played many parts, for he was distinguished as a politician, as a physician, and as a member of the Bar. But it was as a teacher of medicine that he chiefly shone. In this branch of medical science he was pre-eminent. Dr. Rolph came out to Canada from Gloucestershire, in which county he was born, very early in the century. Dr. Richardson thinks he emigrated about 1812, at which time he would have been 19 years of age. He probably, however, did not emigrate to Canada until a few years later. He had been educated at Guy's Hospital Medical School and was a pupil of Sir Astley Cooper. He became a Member of the Royal College of Surgeons of England and is supposed to have returned to England to prosecute his law studies after he had originally reached Canada. At any rate, he became a member of the Inner Temple and practised in Canada both in law and medicine in the year 1831, when he also took an active part in politics. After the failure of the 1837 rebellion Dr. Rolph, who had joined William Lyon Mackenzie in his plot against the existing Government, fled to Russia, but after a time returned to the United States and practised in Rochester up to 1843, when the ban was removed by Act of Parliament and those who had taken part in the rebellion were allowed to go back. Soon after his return he founded a school of medicine which in 1853 was incorporated under the title of the "Toronto School of Medicine," of which more later. Dr. Richardson describes Dr. Rolph as dignified in appearance, quiet and precise in speech, with absolute self-control, courtly in manner, a profound reasoner, and a charming and persuasive orator. He was certainly one of the most influential members of the Reform party in Canada and that party has had its influence upon present day Canadian prosperity. He was also well versed in all branches of medical and surgical science, especially capable of communicating knowledge, and most punctilious in the discharge of his duties as a teacher. Dr. Rolph died in October, 1870, at the age of 83 years.

Several of the medical professors attached to King's College in 1843, when the medical school was first established, had been members of the old Medical Board, and their work ought to be put upon record, however briefly. Of these Dr. King was professor of medicine and one of the leading medical practitioners of Toronto. Dr. W. C. Gwynne, professor of physiology, was one of three brothers all of whom distinguished themselves. One was judge of the Supreme Court and the other was for many years examiner for the benchers at Osgoode Hall, the Law Courts of Upper Canada. Dr. Henry Sullivan, professor of anatomy and curator of the museum, was a Fellow of the short-lived College of Physicians and Surgeons of Upper Canada. He was younger brother of the late Chief Justice Sullivan. Of Professor Sullivan Dr. Richardson speaks in the highest terms. He was a fine, handsome man and a finished anatomist, most assiduous in discharge of his duties, and greatly beloved by all with whom he came into contact. He died from pulmonary tuberculosis in 1850. Dr. Grant Powell was a member of the Medical Board of 1822. He was born in Norwich, England, in 1779 and died in 1838, and throughout his medical career in the colony was accepted as a leader of scientific thought. Dr. William Warren Baldwin, another member of the Medical Board of 1822, came to Canada from Cork, Ireland, in 1789, and settled in Toronto at a date somewhat later. He died in 1844. He was more distinguished as a barrister than as a medical practitioner.

FIG. 3.

Dr. John Rolph.

Dr. James Henry Richardson, to whom we owe much of this information, was born at Presqu' Ile in 1823. He began his medical studies in 1841 with Dr. John Rolph, then living in Rochester, N.Y., and remained with him for two years In 1844 he went to London and studied at Guy's Hospital for three years. He is said to have been the first Canadian to receive the diploma o the Royal College of Surgeons of England. In 1848 he took the degree of M.B. at King's College, Toronto, and in 185 was appointed to succeed Dr. Henry Sullivan as professor anatomy in the newly constituted medical department of e University of Toronto, having acted as substitute for ofessor Sullivan when the latter was incapacitated from ty by illness. Dr. Richardson held the chair of anatomy in e University until the medical department was abolished 1853, and when the medical faculty was re-organised he as again appointed professor of anatomy. He has been on e staff of the Toronto General Hospital and is an ex-esident of the Ontario Medical Association. Referring to edical practitioners in Toronto prior to 1833 Dr. Richardson the reminiscences with which he assisted us to write these ticles was unable to record anything in regard to their rsonalities, but although he does not remember the dividual practitioners he has vivid recollections of leedings, purgatives, blistering and leeching as he himself 1829 underwent these drastic remedies for the relief of cute rheumatism at that date In the early "thirties" Dr. ichardson was acquainted also with a Dr. Morrison, who as Mayor of "Muddy little York" when its name was hanged to Toronto. Dr. Morrison was tried for high treason or his share in the rebellion of 1838. It was expected that e would be convicted and his life trembled in the balance but the jury after long deliberation brought in a merciful verdict. Dr. Morrison, like Dr Rolph, went to Rochester, N.Y., and remained there until the amnesty.

FIG 4

Dr. James H. Richardson.

Dr. Richardson gave us an amusing sketch of a method of medical treatment in vogue in Toronto in the early "thirties" known as "Thompsonism." It derived its name from one Thompson who published a book on Medicine, the two leading principles of which were—first, that all mineral medicines are poisons, and the second, that "Life is heat and cold is death." His practice was limited to the use of antidotes to "canker," and a few vegetables like lady's slipper (cypripedium) and lobelia. His principal remedies were numbered from 1 to 6. His mainstay he named 6. It consisted of gum, myrrh, cayenne pepper, and brandy. It is interesting to learn that even in the early days of Toronto quackery was more or less rampant and, of course, so far as homœopathy is concerned the practice has far more sway and its followers are far more numerous in the United States and in Canada than in the United Kingdom. (Fig. 4.)

This sketch of the early history of medicine in Upper Canada brings us to the year 1842, when a definite effort was made to establish a medical school in Toronto.

(To be continued.)

Obituary.

JOHN BLACKBURN, M.R.C.S. ENG., L.S.A.

Mr. John Blackburn, a well-known medical practitioner in Barnsley and formerly mayor of that town, died at his residence there on July 7th. Mr. Blackburn, who was in his seventy-third year, had been in failing health for some time and on the Tuesday before his death the guardians had consented to his son, Dr. Ernest W. Blackburn, temporarily taking over his father's duties as medical officer of the first district of the Barnsley union. Mr. Blackburn, who was educated at the Barnsley Grammar School, began his medical work under the late Dr. Jackson of Barnsley, subsequently studying at the Sheffield Medical College and in London. In 1859 he was admitted a Member of the Royal College of Surgeons of England and three years later a Licentiate of the Society of Apothecaries of London. He began practice in Barnsley in 1859 and was soon after appointed medical officer to the Barnsley union, a post which he shared with one colleague. Some years later the districts were re-arranged and Mr. Blackburn was then appointed medical officer and public vaccinator to the town of Barnsley, both of which posts he held until his death.

Mr. Blackburn was a keen Volunteer; he was the holder of the Volunteer Decoration and served at various times as surgeon-major of the 2nd Volunteer Battalion York and Lancaster Regiment and Brigade-Surgeon-Lieutenant-Colonel of the East Yorkshire Volunteer Brigade. In another capacity he did a great deal to popularise ambulance work and was one of the first of the honorary associates of the Order of St. John of Jerusalem. He was for many years on the active staff of the Beckett Hospital and latterly acted as consulting surgeon. His civic connexion with Barnsley began in 1869 when the borough was incorporated. In that year he was elected councillor for the South Ward, in 1884 he became an alderman, and in 1891 he was elected mayor. In 1873 he lost his seat as councillor owing to his having strongly supported the building of swimming baths, to which many ratepayers were opposed. But in the following year he was re-elected and remained councillor until his election as alderman. Besides being surgeon to the Beckett Hospital he was also surgeon to the Midland Railway Company and to the West Riding constabulary.

The funeral took place on July 10th when his body was laid to rest in High Bradfield cemetery. The first part of the Burial Office was said at St. Mary's Church and the remainder at the graveside. The body was escorted to the cemetery by the members of the family and by a large number of representatives of public bodies and institutions in the town with which Mr. Blackburn had been connected. Mr. Blackburn, whose wife predeceased him, leaves three children, one daughter and two sons. Both sons are in the medical profession and in practice at Barnsley.

CHARLES ANGUS, M.B., C.M. ABERD.

Dr. Charles Angus, medical superintendent of Kingseat Asylum, Aberdeenshire, who obtained leave of absence only a short time ago from the Aberdeen Lunacy Board, had been suffering from a serious internal complaint for which an operation became necessary, but in spite of the careful attention of his medical friends his death took place in a nursing home in Aberdeen shortly before 3 o'clock on the morning of July 21st, in his forty-eighth year. At the time of his appointment to Kingseat in March, 1903, Dr. Angus was medical superintendent of the Royal Infirmary, Aberdeen, and he was formerly senior medical assistant at the Aberdeen Royal Lunatic Asylum. While a student in the University of Aberdeen he gained prizes or honorary certificates in most of the medical classes. In 1887 he graduated M B, C.M. After his graduation he was elected senior demonstrator of anatomy. In June, 1889, he was appointed junior resident medical assistant at the Aberdeen Royal Asylum. In March, 1890, he was promoted to the senior assistantship, a post which he held for nearly eight years. During that period he was fortunate in seeing the recent extension of the asylum carried out. He had had altogether ten years' experience in the working of the various departments of an asylum in which about 750 patients were accommodated. On leaving the Aberdeen Royal Asylum he was appointed medical superintendent of the Aberdeen Royal Infirmary and Convalescent Hospital. He continued to make a special study of mental derangement and its treatment in all its bearings and to make a special study also of asylum construction and administration, and amongst other institutions he visited and made himself familiar with the construction and working of the asylum at Altscherlitz in Germany. Dr. W. Reid, the medical superintendent of the asylum, described Dr. Angus as "a man possessed of shrewdness, firmness, and tact, all intermingled with much kindness of heart. He has a complete knowledge of the working and management of a large lunatic asylum in all its details, more especially in regard to the internal economy, *to farming in all its aspects*, to amusing and dealing with patients, a gift which few possess to the *same extent*." Dr. Angus was a native of Rhynie, Aberdeenshire. He leaves a widow and two daughters.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—The following gentlemen passed the examination in Practical Pharmacy held on July 18th and 19th:—

George Aldridge, St. Bartholomew's Hospital; James Appleyard, University College Hospital; David Greig Arthur, St. Bartholomew's Hospital; Raymond Glendour Bingham, St. Thomas's *Hospital*; *Guy Capper Birt*, St. Thomas's *Hospital*; Arthur Ellis Blythman, Sheffield University and Charing Cross Hospital; Ivo Geikie Cobb, St. Thomas's Hospital; Beril Molesworth Collard, London Hospital; James Thomas Daly, L.D.S., Middlesex Hospital; Samuel Danziger, Manchester University; David Henry Davies and William Townsend Dobson, University College, Cardiff; Howard Robinson Elliott, Sheffield University and private; Gordon Ernest Dormer Ellis, St. Bartholomew's Hospital; Daniel Charles Evans, University College, Cardiff; Hugh Arthur Evans, Westminster Hospital and private; Cyril Douglas Faulkner and Edwin George Percival Faulkner, St. Mary's Hospital and private; Hilton Evans Bear Finlaison, St. Mary's Hospital; William Trevor Flooks, Cardiff; Gordon John Gallagher, Liverpool University; Harold Gibson, *London Hospital*; *George Graham, B.A. Cambridge*, Cambridge University and St. Bartholomew's Hospital; Harry Leroy Satterlee Griffiths, University College Cardiff; John Griffiths, Technical College, Swansea; Clifford Hall, Manchester University; Charles Herbert Hart, University College, Bristol; Geoffrey Richard Heard, London *Hospital*; *Thomas Shirley Hele*, B.A. Camb., B.Sc. Lond., Cambridge University and St. Bartholomew's Hospital; Edward Coomber Hobbs and Rowland Augustus Hobbs, St. Mary's Hospital; Francis Harold Holl, Cambridge University and St. Thomas's Hospital; William Henry Hooton and Ernest Howden, Leeds University; David Edward John Stopford Hughes, St. Bartholomew's Hospital; Alfred Herbert James, University College Hospital; Geoffrey Jefferson, Manchester University; Griffith Lewis *Jones, University College, Cardiff*; *Charles Frederick Vivian* Kebbell and William Robert Kilgour, St. Bartholomew's Hospital; Charles Haley Knowles and John Murgatroyd Land, Leeds University; Martyn Henry Langford, Middlesex Hospital; William Bertram Lawrence, University College, Cardiff; Septimus Joseph Lee, Middlesex Hospital; Edward Claude Linton, London Hospital; Donald McCully, University College; Colin McIver, Madras and University College Hospital; Henry Sinclair Mason, St. *Mary's Hospital* and private; Albert Ernest Moore, London Hospital; Claude Woodham Morris, University College Hospital; Alfred Philip Nicolle and Hubert Lewis Clifford Noel, London Hospital; Charles Noon, St. Bartholomew's Hospital; Robert Sydney Overton, King's College and St. Thomas's Hospitals; Georg Natanael Palmaer, London Hospital; Richard Alfred Parsons, St. Mary's Hospital; Stuart Kingsley Poole, Guy's Hospital; James Freer Richardson, *London Hospital* and private; *Hugh Rimington, St. Bartholomew's* Hospital; Thomas Stanley Rippon, University College, Bristol; Horatio Nelson Ritchie, Sheffield University and private; John Selfe, St. George's *Hospital*; Edgar Arthur Shirvell, London Hospital and private; Oliver Thomas Slatter, M.R.C.S., Guy's Hospital; Harry Stobie, Charing Cross and St. Thomas's Hospitals; Reginald Woolsey Stocks and Thomas Edmund Alexander Stowell, St. Thomas's Hospital; Charles Henry Burton Thompson, Middlesex Hospital; *George Gilbert Timpson, L.D.S., Guy's* Hospital and private; Walter Vincent Tothill, London Hospital; Arthur John Tozer, St. Mary's Hospital; Hugh Bevan Walker, London Hospital and private; Alexander Watson, London Hospital; John Ernest Price Watts, Westminster Hospital and private; Frederick Cecil Wright, St. Bartholomew's Hospital; and Raphael Yood, Manchester University.

UNIVERSITY OF LONDON.—At the examination for the M.D. degree held recently the following candidates satisfied the examiners:—

Medicine.—John Hunter Clatworthy, Guy's Hospital; Fred Claude Bromley Gittings, Middlesex Hospital; Louisa Hamilton, B.S., London (Royal Free Hospital) School *of Medicine for Women*; Harold Charles Voughton Knight, St. Bartholomew's Hospital; Harold Charles *Corry* Mann, B.S., and Edwin Henry Britton Milsom, Guy's Hospital; Edgar Coningsby Myott, B.S., Guy's *Hospital* and Victoria University; Thomas Perrin, B.S., St. Thomas's Hospital; Harold Pritchard, B.S., St. Bartholomew's Hospital; William Arthur Rees, Middlesex Hospital; George Herbert Sowry, B.S., St. Bartholomew's Hospital; Henry Francis Bell Walker, Guy's Hospital; and Howard Edward Wise, Middlesex Hospital.

Mental Diseases and Psychology.—Gayton Warwick Smith, Guy's Hospital.

Midwifery and Diseases of Women.—George Ernest Aubrey, B.S., St. Bartholomew's Hospital; Lucian A. E. de Zilwa, B.Sc., University College; *Llewellyn S. H. Glanville*, B.S., Guy's Hospital; William Percy Gowland, B.S., Victoria University; Ernest Charles Mackay, B.S., St. Bartholomew's Hospital; Harold Farley Seymour, London Hospital; Frank Edward Taylor, B.S., University of Leeds and King's College; Ernest Frank Travers and Vere [illegible] Ward, St. Bartholomew's Hospital; and *Florence E. Willey*, M.S., B.Sc., London (Royal Free Hospital) School of Medicine for Women.

State Medicine.—Morgan James Rees, Guy's Hospital.

Tropical Medicine.—Frederick Norman White, St. Bartholomew's Hospital and London School of Tropical Medicine.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in July the following candidates passed in the subjects indicated:—

Surgery.—J. L. Meynell (Section II.), London Hospital; E. Sutcliffe (Section I.), Leeds; E. J. F. Thomas (Section II.), Middlesex Hospital; and G. L. Walker (Sections I. and II.), Leeds.

Medicine.—A. C. J. Elwin (Sections I. and II.), King's College Hospital; E. Gay (Section II.), Lausanne; H. J. May (Sections I. and II.), London Hospital; J. L. Meynell (Section II.), London Hospital; E. Moir (Sections I. and II.), Manchester; L. Nicholls (Section I.), Cambridge and London Hospital; A. F. [illegible] (Section I.), St. Bartholomew's *Hospital*; *A. Sheppard* (Sections I. and II.), Guy's Hospital; E. W. Squire (Sections I. and II.), St. Mary's Hospital; E. J. F. Thomas (Section II.), Middlesex Hospital; and W. H. Williams (Section I.), St. Bartholomew's Hospital.

Forensic Medicine.—E. V. Connellan, Bristol; A. C. J. Elwin, King's *College Hospital*; W. H. *Lister*, Durham; E. Morris, St. Bartholomew's Hospital; L. Nicholls, Cambridge and London Hospital; A. Sheppard, Guy's Hospital; E. W. Squire, St. Mary's Hospital; F. A. K. Stuart, Cambridge and St. Mary's Hospital; and W. H. Williams, St. Bartholomew's Hospital.

Midwifery.—E. R. Bastard, St. Bartholomew's Hospital; E. S. [illegible], Royal Free Hospital; G. B. Messenger, Westminster Hospital; L. Nicholls, Cambridge and London Hospital; and P. D. [illegible], *Leeds.*

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—H. J. May, J. L. Meynell, E. Morris, and E. J. F. Thomas.

UNIVERSITY OF GLASGOW.—The following degrees were conferred on July 17th:—

Doctors of Medicine (M.D.).—Commendation: Madge [illegible] Maclean, M.B., C.M., Scotland. Ordinary degree: John [illegible], M.B., C.M., Scotland; John Andrew Cook, M.B., C.M., Scotland; Daniel Ferguson, M.B., C.M., Scotland; and John Selkirk, M.A., M.B., C.M., Scotland.

Bachelor of Medicine and Master in Surgery (M.B., C.M.).—Honours: Robert Stewart M'Kim, M.A., Scotland.

Bachelors of Medicine and Bachelors of Surgery (M.B., Ch.B.).—*Honours*: **Peter Mitchell*, M.A., Scotland; and John Stevenson, Scotland. Commendation: William Rome Cammock, Scotland; George Haswell Wilson, England; James M'Farlane, Scotland; Thomas Baillie Smith, Scotland; James Richan Drever, M.A., Scotland; Elizabeth Maud M'Vail, Scotland; William James Rutherfurd, Scotland; and William Gilfillan, Scotland. Ordinary degrees: John Anderson, M.A., B.Sc., Scotland; Thomas Barbour, M.A., B.Sc., Scotland; George Duncan Morrison *Beaton, Scotland*; *Charles Burns, Scotland*; John Miller [illegible] Caldwell, Scotland; George Campbell, Scotland; William Archibald Campbell, Scotland; Henry Howard Christie, New Zealand; John Sawers Clark, M.A., Scotland; *James* Coutts, Scotland; Thomas Lawson *Craig*, Scotland; Arthur Muir Crawford, Scotland; Ernest Milne Eaton, Scotland; William Gilbert, Scotland; Arnold Harris Gray, Scotland; Robert Neil Guthrie, New Zealand; Charles Francis Dyer Hammond, England; William Towers Hardie, *Scotland*; *Robert* M'Cowan Hill, Scotland; Alexander Hunter, Scotland; Archibald Yuill Hutchison, Scotland; John Keys, Scotland; James Dunlop Kidd, Scotland; William Hendrie Kirk, Scotland; Alexander M'Call, Scotland; Thomas M'Cririck, M.A., B.Sc., Scotland; David MacDonald, Scotland; John Robert M'Gilvray, Scotland; William Anderson M'Kellar, Scotland; William Ferguson Mackenzie, Scotland; Norman Smith MacNaughtan, Scotland; Alister *Argyle Campbell* M'Neill, Scotland; Andrew Alexander M'Whan, Scotland; Florence Mann, Scotland; William [illegible] Manson, M.A., Scotland; Robert Marshall, Scotland; John Miller, Scotland; William Miller, *Scotland*; *Edith Oversby*, England; James Hogg Paul, Scotland; Agnes Picken, M.A., Scotland; Alexander MacMillan Pollock, Scotland; Thomas Hood Rankin, Scotland; Vera Dagmar Reis, Ireland; Frederick [illegible] Robertson, Scotland; William Hermann Sieger, Scotland; William Smellie, Scotland; James Stevenson, Scotland; David Laurence Tate, Jamaica; Charles Samson Thomson, Scotland; James Wyper, Scotland; *John Young (Mount Vernon), Scotland; and Morris *Youdelevitz Young*, Syria.

* Dr. Mitchell gains the Brunton memorial prize of £10, awarded to the most distinguished graduate in medicine in the year.

KING'S COLLEGE, LONDON.—A class in experimental psychology, including practical work and demonstrations, will be held by Professor C. S. Myers on Saturdays at 11 A.M., in the Psychological Laboratory of the College. The class will first meet on Oct. 6th, at noon, and those who wish to attend are requested to apply to Professor Myers at Melrose, Grange-road, Cambridge. A course of lectures on General Psychology will also be given by Professor Myers *during the October session* on Wednesdays at 2 P.M.; these lectures will be repeated on Fridays at

3.30 P.M. Further particulars may be obtained from the Secretary at King's College.

Public Health in Madeira.—Mr. Edward Vicars, the British Consul at Madeira, in his report for 1905, received at the Foreign Office on May 26th, states that the health statistics for the year were good, showing considerable improvement on those for the two previous years. The total number of deaths from all causes in Funchal amounted to 1041 out of a population of 43,375, as against 1258 in 1904 and 1531 in 1903, or at the rate of 35·2, 29, and 24 per 1000 in the three successive years. The death-rate on the population of the whole island—150,574 (of whom no less than 135,580 are illiterates)—was, if the statistics are correct, only 22·5 per 1000. There was no further outbreak of typhoid fever, such as caused so much alarm in 1903 and 1904, the deaths from that disease being only 16, as against 47 and 59 recorded in those two years. It is to be hoped, however, remarks Mr. Vicars, that this comparative immunity from the malady will not serve to lull the authorities into a false feeling of security and thereby cause them to postpone the carrying out of a proper system of drainage and the establishment of a trustworthy water-supply, both of which are urgently needed. In regard to an alarm of plague which had a crippling effect on the business of the port during the closing week of the year, the Consul observes: "This would not be the place, even were the matter not now the subject of a judicial inquiry, to discuss the question in all its bearings, but I may perhaps be permitted to say that the action of the mob who finally stormed the lazaretto and liberated the so-called 'plague' patients proved beyond all question that no plague existed, for no outbreak of that or any other disease followed the rescue of the inmates and their restoration to their homes as must inevitably have happened had they been suffering from a highly infectious malady On the contrary, they one and all proceeded to recover. The annexed statistics of the deaths in Funchal and its neighbouring parishes during the winter months of the last three years afford the most eloquent commentary on the genuineness of this unfortunate scare, which, besides paralysing the business of the port, has been responsible for one of the worst visitors' seasons of recent years:—

Deaths in Conchello of Funchal during Winters of 1903-04 to 1905-06.

	1903-04.	1904-05.	1905-06
November	145	73	76
December	151	100	95
January	142	80	71

These figures speak for themselves. The 1904–05 returns were normal, those for 1903–04 having been greatly swelled by the severe epidemic of typhoid to which I have already referred. The number of deaths of British subjects in Madeira during 1905 was 14, but this figure bears no relation to the mortality among the permanent British colony (numbering 270), as many of those who die here are either visitors or British seamen left behind in the Seamen's Hospital."

Literary Intelligence.—We learn that the twelfth edition of the Extra Pharmacopœia of Martindale and Westcott will be published about the middle of August. It is stated that the text has been rearranged for more ready reference and that additions have been made taken from current literature and from many recent standard works, especially various national Pharmacopœias. A new feature in the work is the appearance of chemical formulæ for all bodies to which a definite chemical constitution could be attributed. The molecular weights of these bodies have been calculated in terms of the British Pharmacopœia equivalents, those of the International Atomic Weights, 1906, and in terms of the United States Pharmacopœia. Greater prominence has been accorded to dental therapeutics. Antitoxins and serum therapy have been brought up to date in the light of the most recent researches, theories, and trials. The sections on radiology, clinical analysis, bacteriology, and the therapeutic index have similarly been thoroughly revised. The work contains over 350 pages more than the eleventh edition but the book remains even now of a size which can be conveniently carried in the pocket of the physician or the chemist. In the section on organotherapy preparations of the duodenal membrane, suprarenal and thyroid glands, and the method of treatment by the inspissated milk of thyroidectomised animals have received careful attention; under the heading antitoxins, vaccines, and antitoxic serums the subjects of anthrax (Sclavo's serum), malaria, leprosy, plague, cancer, tetanus, trypanosomiasis, tuberculin, vaccine, &c., have all been brought up to date in the light of the most recent researches; the latest views on opsonins are described.

Queen Charlotte's Lying-in Hospital.—The clinical report of Queen Charlotte's Lying-in Hospital for 1905 states that during the year ending Dec 31st there were 1544 in-patients discharged after delivery, 930 being primiparæ and 614 being multiparæ. The average duration of stay in the hospital was 14 days. There were five maternal deaths, all in multiparæ, of ages from 33 to 45 years, the causes being placenta prævia, septicæmia, peritonitis, anuria, and accidental hæmorrhage. Forceps were used to deliver the forecoming head in 144 cases, giving a forceps-rate for the year of 9·3 per cent. Of these patients 18 were multiparæ, the remainder being primiparæ; all made good recoveries, except one primipara who suffered from eclampsia, septic endometritis, and pulmonary embolism, but in the result she recovered completely. Uterine inertia and persistent occipito-posterior positions were the two commonest indications for forceps. The youngest and oldest patients for whom forceps were used were 14 and 46 years of age respectively. Version was performed in 17 cases, in ten of which the shoulder presented. Contracted pelvis was found in 61 patients. Women seeking admission to the hospital are generally seen about eight weeks before term; primigravidæ then have their pelves measured and multigravidæ who have had previous obstetric trouble are also examined. Spontaneous delivery occurred in 14 of these cases; 17 were treated by induction of premature labour, nine by Cæsarean section, 18 by forceps, and six by version. Eclampsia occurred in six patients, all of whom recovered; the report makes special mention of the good effects of intravenous injections of normal saline solution in this condition.

Manchester Housing and Health.—A memorial from the Manchester and Salford Sanitary Association was recently presented to Sir Thomas T. Shann who received it on behalf of the Lord Mayor of Manchester who was unable to be present. The memorial urged that it was necessary for the proper guarding of health of the citizens of the future that town councils should have more extended powers of buying and laying out land in the neighbourhood of our towns and that they should have, and use, the power of making plans for all land not built on, and near the towns, which must be complied with, such plans to arrange for the width and direction of the streets and the number and size of the open spaces. The memorialists approved a suggestion of the social questions committee that there should be a conference of local authorities for the purpose of agreeing, if possible, on a definite plan of laying out intermediate areas not now built on so as to insure better housing conditions for the future. Dr. W. E Sawers-Scott spoke of the damage done in the past by the lack of system in laying out our cities and by the builders building at their sweet will. He was followed by Mr. T. C. Horsfall, who said their object was to ask town councils to put a stop to an overwhelming evil. Over 77 per cent. of our population live in the towns and only 23 per cent. in the country. In the past the country population had been drawn upon to make good the waste of the towns but now there was not a sufficient balance in the *country* to do that. If we were to have a strong and vigorous race the towns must be made healthy. In the central districts of the city the conditions were such as to make health impossible. He spoke also of the formation of slums now going on in the suburbs and the steady reproduction of all the evils of the congested centres, "because building was not carried out under any well-defined plan drawn up by a central intelligent authority." Other members of the deputation addressed Sir Thomas Shann and Dr. A. Emrys Jones spoke of the danger that the Platt Hall estate might fall into the hands of the jerry builder. Sir Thomas Shann thanked the deputation and dismissed it with a sympathetic, non-committal answer.

The Children's Sanatorium for the Treatment of Phthisis, Holt, Norfolk.—As we have already pointed out (*vide* THE LANCET of June 16th, p. 1728), arrangements have been made for the accommodation of 12 children in a temporary home adjoining the site of the Children's Sanatorium at Holt, Norfolk, pending the erection of the permanent building. We are now informed that applicants must be suffering from the early stages of pulmonary tuberculosis and the age limit is—for girls, from two to 16 years of age; and for boys, from two to ten years. The terms are 25*s.* a week inclusive. Assistance, so far as funds admit, will be given to necessitous children recommended by the Invalid Children's Aid Association, but in all other cases the full cost must be guaranteed before admission. The Invalid Children's Aid Association, 69, *Denison House, Vauxhall Bridge-road*, Victoria, S.W., will provide for the investigation and medical inspection of all cases and forms can be obtained from the secretary. Meanwhile, in addition to donations for the building fund, the committee appeals earnestly for annual subscriptions to provide for the maintenance of children about to be received. Such donations or subscriptions may be paid to the bankers, Messrs. Hoare and Co., 37, Fleet-street, London, E.C., or to the honorary secretary of the Children's Sanatorium, whose address is 68, Denison House, Vauxhall Bridge-road, Victoria, London, S.W.

DONATIONS AND BEQUESTS.—By the will of the late Dr. James Stewart a sum of over £25,000 is left to the president and council of the University of Melbourne, Victoria, to found and endow in perpetuity three scholarships, each of an annual value of not more than £50, and tenable at the discretion of the president and council for two or three years, to be called the "Stewart Scholarships," one to be awarded for anatomy, one for medicine, and one for surgery.

MEDICAL MAGISTRATE.—Mr. W. Muir Smith, M.B., C.M. Glasg., has been appointed a justice of the peace for Eastbourne.

CENTENARIANS.—Miss Margaret Evans of Pontneath, Glamorganshire, died on July 12th in her 102nd year.—Mr. James Glass died at Graig, Llansadwrn, South Wales, on July 14th. The deceased was a native of Carmarthen, and from the records obtained from St. Peter's Church in that town it was ascertained that he was born on May 1st, 1802.—The death of a native chief, Sigananda, at Nkandhla, in South Africa, is reported. His age was stated to be 104 years.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Bills Abandoned.

IN the last few days a large number of Bills promoted by private Members have been "dropped," to use the Parliamentary expression. Among these are the following measures: Coroners (Mr. LUKE WHITE); Education of the Blind (Mr. STEADMAN); Juvenile Smoking (Dr. MACNAMARA); Nurses' Registration (Mr. MUNRO FERGUSON); Pharmacy (Mr. WINFREY); Public Health (Sir JAMES WOODHOUSE); Public Health Officers (Sir FRANCIS POWELL); and Abolition of Vivisection (Mr. JOHN JOHNSON).

HOUSE OF COMMONS.

FRIDAY, JULY 20TH.

Defective Eyesight of Children.

Mr. BARNES asked the President of the Board of Education whether the promised amendment to the 35th clause of the Education Bill dealing with medical inspection would include a provision authorising local authorities to provide glasses for such children as were found to be of defective eyesight.—Mr. BIRRELL answered: The amendment which the Government inserted in the clause dealt only with medical inspection, which was made compulsory. The point referred to in the honourable Member's question would therefore not fall within it but would come, if at all, within the remainder of paragraph (b) of Clause 35. On this I have to say that I am not prepared to give a general interpretation beforehand as to the various individual matters which would fall within the powers of a local authority under the term "such arrangements as may be sanctioned by the Board of Education pertaining to the health and physical condition of the children educated in the public elementary schools," since the clause throws upon the Board the duty of giving hereafter such sanction as it may think justified by the circumstances of each individual case.

The Gordon College, Khartoum.

Mr. GEORGE GREENWOOD asked the Secretary of State for Foreign Affairs whether his attention had been called to a series of vivisectional experiments performed on dogs, monkeys, and other animals by Andrew Balfour, M.D., at the Wellcome Research Laboratories, Gordon College, Khartoum; whether the Gordon College was under British control; whether the Wellcome Research Laboratories formed part of such college or what was their connexion with it; how such laboratories were maintained and whether or not by public money; whether vivisectional experiments were habitually performed at the Gordon College; whether the operators were subject to any inspection, regulation, or control; and whether such practice was sanctioned by the British Government or its representative in Egypt.—Sir EDWARD GREY replied: I have no information on the points mentioned in the question but I will make inquiries on the subject. The Gordon College at Khartoum is not under the control of the Foreign Office.

TUESDAY, JULY 24TH.

Central Midwives Board and Irish Midwives.

Mr. HEALY asked the Under Secretary of State for the Colonies whether his attention had been called to the injury resulting to the high reputation in obstetric knowledge enjoyed by qualified Irish midwives through the insertion in colonial official advertisements of the requirement that the new certificate legalised in England for the first time in 1902 was a *sine quâ non*; whether he would inquire if pledges were given in the House when the Midwives Act, 1902, was allowed to pass to the effect that *the much older Irish* qualifications would not be prejudiced; and whether he would then inform the colonial Government of the facts, and that after the passing of the Midwives Act the new English Board refused its certificate to *qualified Irish midwives* unless they came to England and passed its examinations, involving more than ten days' absence from home and heavy expense.—Mr. CHURCHILL answered: I fear I have no knowledge of the circumstances referred to in my honourable friend's question. I gather from it that some of the colonies are following a certain rule or practice laid down in England and it seems to me that whatever exception is taken should be to that rule or practice and that the Secretary of State can hardly instruct or advise the colonies not to follow it as long as it exists in this country.

Mr. HEALY asked the Secretary of State for the Home Department whether he was aware that the Midwives Act as at present administered by the Central Midwives Board was being employed as a means of preventing Irish midwives from practising in England, although when the Act was passed Irish representatives were given a distinct guarantee by the promoter that nurses trained in the Irish maternity hospitals would be in no way affected by it; would he inquire whether it was the fact that fully trained and certificated Irish hospital midwives had now to cross over to England and spend ten days in the country in order to pass the qualifying examination of the Central Midwives Board and that but few nurses could spare the time *and money to do this; whether the Central Midwives* Board had refused to allow examinations to be held in Ireland, though the *Irish Midwives Association had guaranteed to defray* the expenses of the same; and whether he was aware that colonial authorities were advertising that the English Central Midwives Board's certificate must be possessed by midwives seeking appointments in the colonies, thus excluding women with Irish qualifications.—Mr. GLADSTONE answered: I am not aware that the Central Midwives Board is taking any such action as is suggested in the first part of the question. The Midwives Act, 1902, does not apply to Scotland or Ireland, but my right honourable friend the Lord President of the Council informs me that the Central Midwives Board has never refused to recognise the Irish midwifery qualifications. During the operation of Section 2 of the Act three Irish midwifery qualifications, in addition to the three mentioned in the Act, were recognised by the Board as entitling their holders to claim the benefits of that section. As to the question of the holding of examinations in Ireland, the Central *Midwives Board considers it has no power to conduct* examinations except at centres in England and Wales, but the Lord President of the Council is taking the opinion of the law officers of the Crown upon the legal point involved. No such advertisements as those to which the honourable Member refers in the last sentence of his question have been brought to my notice.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DENNING, F. A. V., L.R.C.P. Edin., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Sligo District of the county of Sligo.

ESKELL, L. B., L.D.S., R.C.S.I., has been appointed Honorary Dental Surgeon to the Winsley Sanatorium for the Consumptives of the Counties of Gloucester, Somerset, and Wiltshire, and the City and County of Bristol.

GOODE, CHRISTINA L., M.B., B.S. Melb., has been appointed Assistant Medical Superintendent to the Leytonstone Infirmary.

KERRAWALLA, M. P., M.D. Brux., L.R.C.P. & S. Edin., L.M. & S., has been appointed *Assistant House Surgeon to the* Hastings, St. Leonards, and East Sussex Hospital.

MOULD, G. T., Major, I.M.S. (retired), has been appointed Refraction Assistant at the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

NOALL, W. PAYNTER, M.S. Lond., F.R.C.S. Eng., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

PORTER, CHARLES, M.D. Edin., has been appointed Assistant Medical Officer of Health of Leeds.

WALKER, THOMAS WARBURTON, M.B., Ch.B. Vict., has been appointed Medical Officer to the Workhouse by the Tetbury (Gloucestershire) Board of Guardians.

WATSON, GEORGE W., M.D., M.R.C.P. Lond., has been appointed Honorary Demonstrator of Medicine in the University of Leeds.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRACEBRIDGE ASYLUM, Lincolnshire.—Senior Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, attendance, and washing.

oen, Royal Infirmary.—Medical Officer, unmarried. Salary 00 per annum, with board and residence.

ton, Sussex County Hospital.—House Physician, unmarried. lary £70 per annum, with board and residence.

ton Throat and Ear Hospital, Church-street, Queen's-road.—n-resident House Surgeon for six months, renewable. Salary at te of £75 per annum.

ton and Manchester Joint Colony for Epileptics, Langho, ar Blackburn.—Resident Medical Officer. Salary £150 per annum, th board and residence.

ester, Essex and Colchester General Hospital.—House ysician. Salary £80 per annum, with board, residence, and ashing. Also House Surgeon. Salary £80 per annum, with ard, washing, and residence.

nport, Royal Albert Hospital.—Assistant Resident Medical ficer, unmarried, for six months. Salary at rate of £50 a year, th board and lodging.

tian Government, Ministry of Education.—Professor of Mid-fery and Gynæcology. Salary £400 a year. Also Medical Tutor d Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

ina Hospital for Sick Children, Southwark Bridge-road, S.E. -Physician to Out-patients.

ital for Epilepsy and Paralysis and other Diseases of he Nervous System, Maida Vale, W.—Anæsthetist.

s, Hospital for Women and Children.—Resident Clinical sistant for three months.

all Fever Hospital, Manchester.—Fourth Medical Assistant. lary £100 per annum, with board, lodging, and washing.

nt Vernon Hospital for Consumption and Diseases of the hest, Hampstead and Northwood.—Resident Medical Officer. alary £50 per annum, with board, lodging, &c.

h-Eastern Hospital for Children, Hackney-road, Bethnal reen, E.—Medical Officer in charge of Electrical Department. alary £50 per annum.

ton Royal Infirmary.—Senior House Surgeon. Salary £100 per nnum, with board, lodging, washing, &c.

n Charlotte's Lying-in Hospital, Marylebone-road, N.W.—hysician to Out-patients.

al Hospital for Diseases of the Chest, City-road, E.C.—House Physician for four weeks.

field Union Hospital.—Resident Medical Officer. Salary £100 er annum, with apartments, rations, and allowances.

rran (Ancient) Hospital, near Durham.—Medical Officer. alary £100, with house, coals, &c.

kport Infirmary.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

derland Infirmary.—Two House Surgeons. Salary £80 per annum, with board, residence, and washing.

t Bromwich District Hospital.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

ton-super-Mare Hospital.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

ech, North Cambridgeshire Hospital.—Resident Medical Officer.

verhampton and Staffordshire General Hospital.—Assistant House Surgeon, for six months. Honorarium at rate of £75 per annum, with board, lodging, and washing.

Births, Marriages, and Deaths.

BIRTH.

ter.—At Ingledean, Ilkeston, the wife of W. H. St. Leger Carter, L.R.C.P., L.R.C.S.E., of a son.

MARRIAGES.

ziel—Wilson.—On July 21st, at the parish church, Forest Row, Captain R. M. Dalziel, I.M.S., to Euphemia Beattie (Effie), only daughter of Arthur Ross Wilson, Esq., Almora, India.

ff-Hewitt—Hannah.—On July 18th, by licence, at the parish church, Ashton-in-Makerfield, by the Rev. W. Williams, rector of Holy Trinity, assisted by the Rev. F. Kennen, curate-in-charge St. Luke's, William E. Huff-Hewitt, M.B., Ch.B., Rhis-on-Sea, younger son of the late Rev. W. J. Hewitt, to Maud Elizabeth, second daughter of Nathan Hannah, L.R.C.P. Edin., M.O.H., &c., of Rock House, Ashton-in-Makerfield. "At home" Sept. 12th and 13th.

llar—Graham.—At Durban, South Africa, on the 15th June, James Grant Millar, M.B., Ch.B., youngest son of the Rev. David Millar, D.D., of St. John's, Glasgow, to Mary Lang, second daughter of the late Andrew Lang Graham and Mrs. Graham, 12, Park-circus, Glasgow.

DEATHS.

rcan.—On July 22nd, at Grosvenor-road, Highbury, N., Andrew David Duncan, M.D. Edin., L.R.C.S. Edin., aged 67.

ardson.—On July 20th, at the Friary, Winchester, Richard Margerison, B.A., F.R.C.S., aged 54.

ble Smith.—On July 20th, at Queen Anne-street, Cavendish-square, Noble Smith, F.R.C.S. Edin., in his 60th year.

ing.—On July 15th, at Wellington, New Zealand, Charles Edward Wing, L.R.C.P., M.R.C.S., younger son of the late Henry Wing, surgeon, Bury St. Edmunds.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE HUMOURS OF COUNTRY PRACTICE.

"The art of medicine, like most other things, has its humorous side, and the following extracts from the notes of 18 years' country practice may amuse your readers. It is well that the lighter side of work which must often be so sombre should now and then be viewed. Each extract is absolutely authentic and none is 'touched up' in any way." Thus writes an esteemed correspondent in preface to the following amusing notes of his daily life:—

To begin with an artless consultation in the surgery. Enter two small children, the elder of whom, aged about six years, produces a flat pint bottle, of the sort in which the best pale brandy is dispensed to the public, and says, "Please, some medicine for the baby." "Well, what's the matter with it?" "Please, its got a bad backside." I wonder how Sir William Broadbent or Sir Richard Douglas Powell, or any other of our revered leaders, would deal with a medical emergency such as this? Would they be more competent than the humble G.P.? Small wonder, by-the-bye, that Sherlock Holmes was evolved by a medical man; there is a deal of deduction goes on in a country surgery.

Then comes a recollection of a cadaverous individual who walks in and with sepulchral tone says, "Good afternoon, sir, I've come to tell you about my stomach, sir. Last Friday it come right up into my throat." What a case for Messrs. Moynihan, Mayo, Ward, and Littlewood! This is one of the patients who seeks to impress you by vivid description of his symptoms. How well we all know him, and how very graphic he can be. Here are some similar efforts enlivening my notebook: "I coughed last night till a lump come in my lenk [groin] and my eyes they struck fire." "When I was eleven year old I 'ad the dynasty; I 'ad the dynasty 'n I 'ad the small-pox, one arter the other." "The itching and aching in my legs, oh, it's somethin' chronic: it makes my eyes strike fire every time my stockins is pulled on (or off)."

Many patients are excessively genteel in talking of matters medical. One good lady, describing a common digestive disturbance, said in a tone of indescribable refinement, "I fancy, Doctor, that a cold was the instigation of it." On another occasion the same lady assured me that she "never was in such a dialeema." Of the same category is the gentleman who approached me delicately with, "I wish to solicit your custom, sir, for my wife in her confinement."

Among odds and ends I find the following. A small girl of about seven, who says mysteriously, "Please, sir, pappa says he's very cautiously in his bowels." Wise man, that. A man, in reply to the inevitable, "How do your bowels act?" replied, "Well, sir, not very gay, sir." (This I have heard so frequently since I first noted it that it has ceased to amuse me and the same is true of the reply: "I'm always rather caustic," which is an almost daily commonplace.) Finally, a virtuous lady, discussing a delinquent neighbour, said: "I don't 'old with such drunkenness and immortality."

Written communications have often relieved the burden of the day's work and as *litera scripta manet* I inclose the originals of all those given below. To begin with a typical one:—"Doctor ——, Sir, I write to inform you that Mrs. B. is very ill, she as a very Bad cold, and cough, her inside seems very week indeed, my water is bad and high colour. I remain, your's truly, Mrs. B."

Here is another sample: "Please, sir, will you be kind enough to try and send Misis R. something to ease her cough and her breath the wind creates round her stomach and she cant get anything to move it at all and it makes her that she cant get about at all, and she will be much obliged if you will do so." That fine expression, "the wind creates round her stomach," has become a classic in our family circle.

Again: "Dear Sir, I write to tell you that Mrs. S. is suffering with pains, it begun in the hipe and as made its way into the back and about folloWing with sickness with flotering in the art and unable to eat and drink. I am, etc., on behalf of Mrs. S., John S."

The following gives the most elaborate rendering of that awkward word diarrhœa. The variations run in this part of the country, from "diaborria," through "direar" and "diare," to the simple form "dyre." "Dear Sir, The Mediceen you sent have stopped the diaborria but I feal very low and weak and I have a pain in my side just to the right of the nable and my nable his larger than it ought to be, yours truly, W. P."

The writer of the following has ingeniously avoided the diarrhœa difficulty:—"Sir, I want you to please to send me some medicine. I have a violent pain in my bowels with pergin, please to send me something to ease the pain."

The genteel letter-writer, of course, flourishes. "Will Dr. —— please note his services will be required as usual at Mrs. H.'s approaching confinement. The event is expected in March, and oblige." And in the following year a postscript:—"And please note that Mrs. H. will require Dr. ——'s services early in September for confinement purposes, as before." And, finally:—"Will Dr. —— kindly lend Mrs. G. the Enema, as Nurse O. wants to give an ejection."

THE EBBW VALE WORKMEN'S DOCTORS' FUND.

THE relations between the working men of Ebbw Vale and the medical officers attending them have reached an acute stage. The workmen's committee has given its medical officers three months' notice to terminate their engagements, and it is stated that steps are to be taken to fill the vacancies thus formed. The anger of the workmen seems to have been aroused chiefly by a letter which appeared in THE LANCET, Dec. 23rd, 1905, p. 1877. This letter, which was from Mr. H. S. Elworthy, one of the medical officers in question, dealt at length and in general terms with the evils arising from the contract system of medical attendance. Ebbw Vale was not mentioned, nor, indeed, was any other locality, and with the statements therein contained we are mainly in agreement. The workers of Ebbw Vale, forgetting the old saw, "If the cap fits put it on," applied Mr. Elworthy's strictures to themselves and accordingly a meeting was arranged and was recently held at which Mr. Elworthy consented to meet the workmen of Ebbw Vale and to discuss the statements contained in his letter. He received a fair hearing but he was much heckled, and Mr. Richards, M.P. for West Monmouthshire, had the bad taste to characterise Mr. Elworthy's statements as "lies, lies, lies." Mr. Richards also made rude remarks as to Mr. Elworthy's conduct in receiving a salary from the Ebbw Vale Colliery Company. Mr. Richards also said "that they would never submit to the British Medical Association" and it was finally decided to publish Mr. Elworthy's name as "the offending doctor." Mr. Elworthy allowed that he might have exaggerated when he said that "patients were in the main highly paid workmen" and that he should have said "in too many cases" instead of "in the main." The rest of his remarks he considered to be substantially correct and he refused to withdraw his statements, as the meeting demanded that he should do.

We consider that Mr. Elworthy is perfectly in the right. He made general statements which are generally true. Ebbw Vale was not mentioned but we make no doubt that the conditions of contract medical practice there are just as bad as anywhere else, and how bad that is those of our readers who remember "The Battle of the Clubs" will have no difficulty in recalling. It has been decided by the Trades and Labour Council of Ebbw Vale to hold a meeting on July 28th at which the subject of the letter will come up.

A QUESTION OF PROFESSIONAL BEHAVIOUR.

To the Editors of THE LANCET.

SIRS,—Recently a patient of mine met with an accident. He went to a neighbouring hospital and was attended by a surgeon on the staff of that hospital, who arranged to see him the next day at his (the surgeon's) own house. He continued to attend him until he was well. Is it in accordance with medical etiquette and gentlemanly conduct for a surgeon to do this, when he knew that the patient had a medical man who was in the habit of attending him? I think the question most important, as it is not the first time that a similar thing has occurred within my own knowledge, and it does not seem to me consistent with the best traditions of our profession.

I am, Sirs, yours faithfully,

July 21st, 1906. INQUIRER.

*** "Inquirer" must know that he has described a bad breach of professional manners.—ED. L.

CIRCUMCISION IN ETHNOGRAPHY.

WE have received a little pamphlet containing a paper upon the ethnography of circumcision, reprinted from the *New York Medical Record* of June 9th. The author of the paper is Dr. John Knott of Dublin who is well known as a writer upon various antiquarian subjects in medicine. The paper is, as Dr. Knott himself terms it, a somewhat "crude panoramic sketch" but for all that it contains materials for a much fuller work on the subject. Circumcision is a custom which is of wide interest to anthropologists. It, or variants of it, such as the arilthakuma of the Central Australian tribes, which, by the way, Dr. Knott does not mention, is a custom found all over the world. The Jewish race, as is well known, regarded the rite as something peculiar to themselves and as marking them off from other nations, and as a matter of fact it did mark them off from most of the known nations of the old world except the Egyptians. So much so was this the case that the writer of the Maccabees complains bitterly that the advanced Jews of the time of that book were so anxious not to appear too national that they made themselves prepuces (ἀκροβυστίας). Unfortunately, he has left no record of how this interesting prosthesis was carried out. Circumcision in boys and the analogous rite in girls have been performed among nations other than the Jews at puberty and marked the change from the infant, in the legal sense, to the full-grown man or woman. Among the Jews it is, of course, performed upon the eighth day after birth and the Biblical account of its institution makes it a distinctly dedicatory operation. Among other nations the rite was connected not only with puberty but also by an easy transition with the fertility of crops. But the folk-lore of crops, vegetation gods, fertility and generation, initiation ceremonies, and the concurrent matters of menstruation, tests of virginity, and the like is a very wide subject upon which volumes have been, and might continue to be, written. Dr. Knott's little paper is a useful collection of notes for those who may wish to pursue the subject further.

RATHER AMBIGUOUS.

THE following advertisement appearing in an excellent gazette for medical students is not happily worded.

> FOR SALE.—Ashby & Wright's Diseases of Children, in good condition; 12*s*.—Apply Editor.

THE CAUSE OF POISONING BY HAWTHORN BUDS AND CERTAIN OTHER PLANTS.

A CORRESPONDENT of the *Chemist and Druggist* of June 9th ascribes the poisonous properties of hawthorn buds to an abundance of crystals of calcium oxalate, the presence of which he has identified by a microscopical examination. The buds are commonly known in various parts of England as "bread and cheese" and are frequently eaten by children. The dangerous nature of the custom has recently been emphasised by the death of a girl at Penrith. A further examination of the leaves at a later stage showed that the crystals had disappeared. It is curious to note that in some other plants—e.g., rhubarb—the acidity of the young plants is not due to oxalic acid but probably to malic, citric, and tartaric acids; the oxalic acid appears at a later stage. That oxalic acid is the cause of poisoning by hawthorn buds receives support from the following case. A farmer in the Midlands having lost a number of cattle suspected that death was caused by plants with an unusual leaf which were growing on the grazing ground. Specimens of the plants were submitted to a botanist who recognised them as belonging to a species of *Dipsacus*. A chemical examination of the leaves revealed the presence of an abundance of oxalates. A fatal case of poisoning occurred recently at King's Heath through a child eating dandelion flower buds and a careful examination of the field revealed no trace of any plants known to contain oxalic acid. It is probable that in this case also oxalates were present in the flower buds.

HOLIDAYS FOR POOR CHILDREN.

THE Rev. J. W. Atkinson of "Claremont," Cowley-road, London, N.E., sends us an appeal on behalf of East-end slum children to whom a day in the country means so much. The East London Mission, of which our correspondent is the president, informs us that the entire cost of giving a day's holiday in the country to each poor slum child, including a substantial meal, is 1*s*. per head, and even this small sum will be thankfully received by the committee of the mission. Probably there is little to be gained from a physiological point of view by one day's outing in the country but the ray of sunshine which it brings into the sordid lives of the children of our slums has a valuable mental effect.

AUGUST BANK HOLIDAY ON THE CONTINENT.

THE Great Eastern Railway Company announces that tickets at reduced fares available for eight days will be issued to Brussels from August 1st to 4th inclusive and August 6th, and to Zürich, via Harwich and Antwerp. Dining and breakfast cars are run between London and Parkeston Quay, Harwich, on the Antwerp service, and passengers leaving London in the evening reach Brussels next morning after a comfortable night's rest on board the steamer. For visiting The Hague, Scheveningen, and Amsterdam special facilities are offered *viâ* the Company's Royal British Mail Harwich-Hook of Holland route. A corridor train with vestibuled carriages, dining and breakfast cars is to be run on the Hook of Holland service between London and Harwich. From the Hook of Holland through carriages and restaurant cars are run in the North and South German express trains to Cologne, Basle, and Berlin, reaching Cologne at noon and Basle and Berlin in the evening. For the convenience of passengers tickets dated in advance can be obtained at the Liverpool-street Station Continental Enquiry and Booking Offices. The Danish Royal Mail steamers of the Forenede line of Copenhagen will leave Harwich for Esbjerg (on the west coast of Denmark) on August 2nd and 4th, returning on August 7th and 8th. The General Steam Navigation Company's steamers will leave Harwich on August 1st and 4th for Hamburg, returning on August 5th and 8th.

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ERRATA.—Dr. James Fletcher, some remarks by whom are reported in THE LANCET of July 21st, p. 180, is resident medical officer of the Ham Green Fever Hospital, Bristol, and does not (as inadvertently stated in the report) represent the Metropolitan Asylums Board. —In the analysis given of "Invalid Port," on p. 1833, of THE LANCET of June 30th, the figures for alcohol when corrected for temperature should read: alcohol by weight 18·06 per cent., by volume 22·18 per cent., equal to proof spirit 38 87 per cent.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Eastbourne Chronicle, Glasgow News, Manchester Courier, Manchester Guardian, Birmingham Post, Daily Express, Bristol Mercury, Bradford Telegraph, Dublin Independent, Leeds Post, Sheffield Independent, Daily Mail, Leicester Post, Sheffield Telegraph, Westminster Gazette, Cardiff Mail, Globe, Leeds and Yorkshire Mercury, Bradford Observer, Freeman's Journal, Devon Gazette, Darlington Echo, Northampton Reporter, Dublin Times, Hull Mail, Belfast Whig, &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m by Steward's Instruments.)

THE LANCET Office, July 26th, 1906.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind.	Rainfall.	Solar Radia in Vacuo	Maximum Temp. Shade.	Min. Temp.	Wet Bulb	Dry Bulb.	Remarks
uly 20	29 83	W.	...	121	69	54	54	59	Cloudy
" 21	29 93	S W.	...	95	67	63	54	59	Cloudy
" 22	29 93	W.	0·02	123	80	59	61	66	Cloudy
" 23	29 93	S W.	...	135	81	59	67	71	Overcast
" 24	29 97	N W.	...	126	74	62	67	64	Cloudy
" 25	30 16	E.	...	116	75	57	55	63	Fine
" 26	29·95	E	...	119	73	58	59	65	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond street (3 P.M.)

TUESDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1 30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.)

WEDNESDAY (1st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 30 A.M., Dental, 2 P.M.).

THURSDAY (2nd).—St. Bartholomew's (1 30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.)

FRIDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9 30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.)

SATURDAY (4th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9 15 A.M.), Charing Cross (2 P.M.), St George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.)

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (30th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. *Operations* *Mr Dunn*: Diseases of the Eye.

TUESDAY (31st).—POST GRADUATE COLLEGE (West London Hospital Hammersmith-road, W.).—10 30 A.M. Dr Moullin Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: Dr Ball: Diseases of the Throat, Nose, and Ear 2 30 P.M.: X Rays. Operations. Dr Abraham *Diseases of the Skin.*

WEDNESDAY (1st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr Ball Diseases of the Throat, Nose, and *Ear* *Dr Saunders*: *Diseases of Children.* 2 P.M.: Medical and Surgical Clinics. 2 30 P.M.: X Rays. Operations. CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn road, W.C.).—5 P.M.: Demonstration:—Mr Stuart Low: Ear

THURSDAY (2nd).—POST GRADUATE COLLEGE (West London Hospital Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays Operations. Mr Dunn: Diseases of the Eye.

FRIDAY (3rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 30 A.M. Dr Moullin Gynæcological Operations. 2 P.M.: Medical and Surgical *Clinics.* 2.15 P.M.: Dr Ball: *Diseases* of the Throat, Nose, and Ear 2.30 P.M.: X Rays Operations. Dr Abraham: Diseases of the Skin

SATURDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 A.M.: Dr Ball: Diseases of the Throat, Nose and Ear 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol I. of 1906, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

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A Clinical Lecture

ON

THE HANDS OF SURGEONS AND ASSISTANTS IN OPERATIONS.

Delivered at University College Hospital,

BY ARTHUR E. J. BARKER, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL, ETC.

GENTLEMEN,—We have now arrived at an era in which we may claim to know a good deal about septic processes. We also know something at least about the life-history of most of the organisms upon which these processes depend, thanks to the patient labours of countless bacteriologists. It is also now pretty well understood how the various septic fungi may be destroyed by heat or chemical agents. But it is only comparatively recently that the several avenues by which the dreaded microbes gain access to the living tissues have been more or less clearly recognised and their relative dangers apportioned. And only more recently still has this knowledge led to fairly practical efforts—first, towards the reduction in their numbers in all localities where operations are undertaken, and, secondly, to their exclusion from the field of operation during the procedure itself. But notwithstanding this advance much remains to be done in the direction of utilising the knowledge gained.

The avenues of infection may be thus summarised. 1. Access to injured surfaces from within the patient's own body—e.g., lungs, alimentary and genito-urinary tract. 2. Access to injured surfaces from without. Under this last heading, with which we are alone concerned to-day, the possible sources of infection of a recent wound are: (*a*) the surrounding air and solids; (*b*) the object which has made the wound; (*c*) the instruments employed in treatment; (*d*) the ligatures, swabs, and dressings employed and the clothing of operator and assistant which may come in contact with the wound; (*e*) the patient's own skin and hair; and (*f*) the surgeon's and assistants' hands.

Now *these half-dozen possible* avenues of infection are not all of the same importance. This has been proved by a long series of original bacteriological investigations of the most laborious and ingenious nature; and if I were to give you the mere titles of only those of them which I have myself carefully studied the list might be so long as to discourage some of you. But the following conclusions may be drawn from all this work—theoretical, experimental, and practical.

(*a*) First, that the air of most rooms devoted to surgical operations, if the usual precautions as to general cleanliness are adopted and if they are not too crowded and if rapid currents of air are avoided, is not such a danger to open wounds as was formerly supposed in the days of the carbolic spray. This is not to say that the influence of the air as a germ carrier can be ignored as a *quantité négligeable* in all cases and under all conditions. It means simply that with ordinary commonsense precautions as to cleanliness, especially of the floor, and stillness of the air of a room we can operate in it without undue anxiety. That the absence of common sense is conspicuous in the arrangements with regard to some operating rooms is quite another matter. Rooms are dangerous to wounds in proportion to the numbers of people in them and to the activity of the movements of these persons to and fro. In a well-known clinical lecture room the following averages were established by a long series of bacteriological observations. When occupied by the usual audience the exposure for an hour of a four-inch Petri dish with sterilised agar showed on cultivation 155 colonies of organisms. On the other hand, when the same room was empty and the air at rest a similar exposure only showed 37. In contrast to this the aseptic operation theatre of the same institution in use and at rest only showed 60 and three colonies respectively after an hour's exposure.

(*b*) As to a wound made by an instrument or other object which is dirty, it need only be said that if seen early and it is possible the area involved should be cleanly *excised* and then the resulting wound treated as aseptic. If seen too late for this it should be thoroughly scrubbed and treated with antiseptics and left open.

(*c*) Speaking generally, the instruments employed in surgical operations can nearly all be rendered sterile by careful washing and boiling in soda solution. There are, however, some which are spoiled by boiling and the common antiseptics, and among these the most important are knives, scissors, and needles. Fortunately, washing with hot water and soap, followed by immersion for a quarter of an hour in methylated spirit, is quite adequate to render their plane surfaces aseptic. It may be said, then, that infection from an instrument can easily be prevented.

(*d*) The same may be said of the overalls, swabs, dressings, and bandages employed in most cases if saturated steam be employed. The last three, as you know, are in my own technique the same thing. For the sake of simplification of procedure my swabs are merely eight-inch lengths cut off the four-fold gauze rollers also to be used as bandages and dressings and all come out of the same sterilising drum in most cases. Simplification of procedure is to my mind one of the most important desiderata in aseptic surgery and is very sadly neglected at present. It eliminates many opportunities of confusion and of accidental contamination and saves much time and thought in preparation and manipulation as well as much expense.

On the subject of ligatures and sutures much might be said. The amount of investigation as to the best material to employ and the modes of its preparation is simply enormous. But it must not be forgotten that almost any material used for ligatures may be left in any tissue of the body, if *sterile*, without hurt if in small quantity. It becomes, then, a question what ligature can be best sterilised and what material is so strong that its thread can be very fine and yet very strong, so that the smallest foreign body is left in a wound. But that some materials are not easily sterilised is clear. As for my own work, after giving an extended trial to many substances—catgut, tendon, horse-hair, silkworm gut, pure twist silk, and linen thread—I have for years exclusively used the last for ligatures and sutures.

But beyond all this there is the possibility of restricting the use of ligatures in a great many operations almost to zero by the use of hæmostatic forceps. This gets over a great difficulty. But we know that the *extent* to which forceps may supersede ligatures is not realised by many operators, especially abroad. In my own work ligatures are but rarely used. I do not think, for instance, that in the last 50 amputations of the breast ten have been employed, perhaps not five. The forceps of Péan and Spencer Wells have been all that was necessary.

(*e*) If you wish to realise the abundance and variety of the flora of the human skin you have only to repeat for yourself one of the many careful and extended observations made years ago on this point by several investigators abroad as follows. After one or more rigorous hot baths, with plenty of soap, put on a vest previously sterilised by steam. But *before doing* so stitch on various spots of its inner surface small, one centimetre, patches of some woven substance, say in the axillæ and groins, the abdomen, and the back. *When this* vest has been worn for the day separate these patches with sterile scissors and forceps and place each in a tube of sterile agar. After shaking and stirring them up in the fluid pour the latter into Petri dishes and place these in an incubator. After 48 hours an inspection of the results will convince you of the omnipresence of septic organisms even on a clean skin where it is not exposed to the air and will give you an idea of their relative abundance on the various parts of the body over which the little patches have been worn. If these results are obtained *from* a well-washed skin a surgeon may well be uneasy in the case of the average patient. And if this is true, how much more so must it be of the skin of the head, hands, and feet which are constantly *exposed*. If any further proof is necessary read the reports of some bacteriological tests of the number of organisms found in a cubic centimetre of water taken from the Seine in Paris first above and then below the laundry stations on its shores. The difference runs into millions. After this you will need no proof that the whole skin of a patient to be operated on requires the most careful cleansing *not once* but many times before an operation is undertaken. (Many other proofs might be given.) And why many times? Simply because though one washing with or without germicides may render the surface of the skin *relatively* pure it does not reach the hair, sweat, and sebaceous follicles which are constantly the hosts of countless microbes and these latter only come to the surface in the course of natural secretion. Individuals vary,

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A Clinical Lecture

ON

THE HANDS OF SURGEONS AND ASSISTANTS IN OPERATIONS.

Delivered at University College Hospital,

BY ARTHUR E. J. BARKER, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL, ETC.

GENTLEMEN,—We have now arrived at an era in which we may claim to know a good deal about septic processes. We also know something at least about the life-history of most of the organisms upon which these processes depend, thanks to the patient labours of countless bacteriologists. It is also now pretty well understood how the various septic fungi may be destroyed by heat or chemical agents. But it is only comparatively recently that the several avenues by which the dreaded microbes gain access to the living tissues have been more or less clearly recognised and their relative dangers apportioned. And only more recently still has this knowledge led to fairly practical efforts—first, towards the reduction in their numbers in all localities where operations are undertaken, and, secondly, to their exclusion from the field of operation during the procedure itself. But notwithstanding this advance much remains to be done in the direction of utilising the knowledge gained.

The avenues of infection may be thus summarised. 1. Access to injured surfaces from within the patient's own body—e.g., lungs, alimentary and genito-urinary tract. 2. Access to injured surfaces from without. Under this last heading, with which we are alone concerned to-day, the possible sources of infection of a recent wound are: (*a*) the surrounding air and solids; (*b*) the object which has made the wound; (*c*) the instruments employed in treatment; (*d*) the ligatures, swabs, and dressings employed and the clothing of operator and assistant which may come in contact with the wound; (*e*) the patient's own skin and hair; and (*f*) the surgeon's and assistants' hands.

Now these half-dozen possible avenues of infection are not all of the same importance. This has been proved by a long series of original bacteriological investigations of the most laborious and ingenious nature; and if I were to give you the mere titles of only those of them which I have myself carefully studied the list might be so long as to discourage some of you. But the following conclusions may be drawn from all this work—theoretical, experimental, and practical.

(*a*) First, that the air of most rooms devoted to surgical operations, if the usual precautions as to general cleanliness are adopted and if they are not too crowded and if rapid currents of air are avoided, is not such a danger to open wounds as was formerly supposed in the days of the carbolic spray. This is not to say that the influence of the air as a germ carrier can be ignored as a *quantité négligeable* in all cases and under all conditions. It means simply that with ordinary commonsense precautions as to cleanliness, especially of the floor, and stillness of the air of a room we can operate in it without undue anxiety. That the absence of common sense is conspicuous in the arrangements with regard to some operating rooms is quite another matter. Rooms are dangerous to wounds in proportion to the numbers of people in them and to the activity of the movements of these persons to and fro. In a well-known clinical lecture room the following averages were established by a long series of bacteriological observations. When occupied by the usual audience the exposure for an hour of a four-inch Petri dish with sterilised agar showed on cultivation 155 colonies of organisms On the other hand, when the same room was empty and the air at rest a similar exposure only showed 37. In contrast to this the aseptic operation theatre of the same institution in use and at rest only showed 60 and three colonies respectively after an hour's exposure.

(*b*) As to a wound made by an instrument or other object which is dirty, it need only be said that if seen early and it is possible the area involved should be cleanly *excised* and then the resulting wound treated as aseptic. If seen too late for this it should be thoroughly scrubbed and treated with antiseptics and left open.

(*c*) Speaking generally, the instruments employed in surgical operations can nearly all be rendered sterile by careful washing and boiling in soda solution. There are, however, some which are spoiled by boiling and the common antiseptics, and among these the most important are knives, scissors, and needles. Fortunately, washing with hot water and soap, followed by immersion for a quarter of an hour in methylated spirit, is quite adequate to render their plane surfaces aseptic. It may be said, then, that infection from an instrument can easily be prevented.

(*d*) The same may be said of the overalls, swabs, dressings, and bandages employed in most cases if saturated steam be employed. The last three, as you know, are in my own technique the same thing. For the sake of simplification of procedure my swabs are merely eight-inch lengths cut off the four-fold gauze rollers also to be used as bandages and dressings and all come out of the same sterilising drum in most cases. Simplification of procedure is to my mind one of the most important desiderata in aseptic surgery and is very sadly neglected at present. It eliminates many opportunities of confusion and of accidental contamination and saves much time and thought in preparation and manipulation as well as much expense.

On the subject of ligatures and sutures much might be said. The amount of investigation as to the best material to employ and the modes of its preparation is simply enormous. But it must not be forgotten that almost any material used for ligatures may be left in any tissue of the body, if *sterile*, without hurt if in small quantity. It becomes, then, a question what ligature can be best sterilised and what material is so strong that its thread can be very fine and yet very strong, so that the smallest foreign body is left in a wound. But that some materials are not easily sterilised is clear. As for my own work, after giving an extended trial to many substances—catgut, tendon, horse-hair, silkworm gut, pure twist silk, and linen thread—I have for years exclusively used the last for ligatures and sutures.

But beyond all this there is the possibility of restricting the use of ligatures in a great many operations almost to zero by the use of hæmostatic forceps. This gets over a great difficulty. But we know that the extent to which forceps may supersede ligatures is not realised by many operators, especially abroad In my own work ligatures are but rarely used. I do not think, for instance, that in the last 50 amputations of the breast ten have been employed, perhaps not five. The forceps of Péan and Spencer Wells have been all that was necessary.

(*e*) If you wish to realise the abundance and variety of the flora of the human skin you have only to repeat for yourself one of the many careful and extended observations made years ago on this point by several investigators abroad as follows. After one or more rigorous hot baths, with plenty of soap, put on a vest previously sterilised by steam. But before doing so stitch on various spots of its inner surface small, one centimetre, patches of some woven substance, say in the axillæ and groins, the abdomen, and the back. When this vest has been worn for the day separate these patches with sterile scissors and forceps and place each in a tube of sterile agar. After shaking and stirring them up in the fluid pour the latter into Petri dishes and place these in an incubator. After 48 hours an inspection of the results will convince you of the omnipresence of septic organisms even on a clean skin where it is not exposed to the air and will give you an idea of their relative abundance on the various parts of the body over which the little patches have been worn. If these results are obtained from a well-washed skin a surgeon may well be uneasy in the case of the average patient. And if this is true, how much more so must it be of the skin of the head, hands, and feet which are constantly exposed. If any further proof is necessary read the reports of some bacteriological tests of the number of organisms found in a cubic centimetre of water taken from the Seine in Paris first above and then below the laundry stations on its shores. The difference runs into millions. After this you will need no proof that the whole skin of a patient to be operated on requires the most careful cleansing not once but many times before an operation is undertaken. (Many other proofs might be given) And why many times? Simply because though one washing with or without germicides may render the surface of the skin *relatively* pure it does not reach the hair, sweat, and sebaceous follicles which are constantly the hosts of countless microbes and these latter only come to the surface in the course of natural secretion. Individuals vary.

of course, as to the crops of micro-organisms they grow in their skin as well as on it and in certain callings we may expect more than others. But for surgical purposes we must assume that *every* skin claims the very closest attention before operation, no matter what class of the community the patient belongs to. And also we must remember that different parts of the body surface vary as to the abundance of their septic flora. This is seen in the experiment alluded to above.

As a general statement, wherever follicles abound in the skin, whether hair, sebaceous, or sweat, there the usual micro-organisms abound and are particularly hard to dislodge. For this reason my own reliance for the cleansing of the skin is placed in the first place upon *repeated* hot baths of the whole body wherever permissible, accompanied by vigorous scrubbing with soft soap and brush. After each bath the area to be uncovered during operation is wrapped up in some sterilised fabric after a couple of hours of soaking in 1 in 30 carbolic lotion. The increased activity of the glands of the skin induced by the baths and wraps brings the secretions to the surface and with them the parasitic organisms. The carbolic solution tends to destroy these and produces besides a certain amount of exfoliation of the superficial epidermic scales which are, as a rule, more or less infected. When this process has been repeated, if possible for some days, the skin is relatively clean. It is finally washed carefully over before operation with spirit. In those cases in which an operation has to be done soon after the patient is first seen the skin is washed with turpentine or ether thoroughly, then soaped, shaved, and scoured over and over again with hard brush and hot water and soft soap, and wrapped in the carbolic towel if possible for two hours before operation, or as near that as time permits. But in both cases, regarding the skin as still possibly impure, I have for many years adopted the practice of covering the whole of the patient's body just before operation with a sterilised sheet of double gauze or cloth through which a hole is cut only large enough to permit of the operation being done through it, while the hands of the operator and assistants are by it prevented from coming in contact with the patient's skin during the operation. This gauze extends from the patient's face to the feet and covers all his clothing and the operating table. It is cut from one of our rollers. In former days we were taught to protect the patient from the chilling effects of the spray by the use of mackintoshes, and to protect both the surgeon's hands, and therefore the patient, from the mackintoshes by covering the latter with towels wet in carbolic solution. The sprays having now gone the sooner the mackintoshes and wet towels go the better, as they cost much labour and time to clean. I have not used these for many years.

(*f*) We now come to the subject which I wish to emphasise particularly to-day—viz., the surgeon's and assistants' hands. And if this is treated somewhat in detail it is because it is admittedly one of the weakest points in our aseptic procedure and everything is not commonly done to minimise risk from the hands that might easily be done as a routine.

The question of the cleansing of the hands in the first instance is of course the most important of all. It is not too much to say that this fact is now fully established and that an enormous amount of laborious bacteriological work has been done to find out the best methods. And the number of valuable essays which have been written on the subject is very large. Having read all the most important and tried many methods I may say that I have more confidence in the results of Ahlfeld's and Fürbringer's experiments (now many years old) of sterilising the hands with very hot *running* water and pure soap and brush, followed by spirit, than in any others. This has to be employed in no perfunctory manner but over and over again for many minutes at a time. The evidence is strong that by this method of disinfection the percentage of organisms clinging to the hands is as small as, or smaller than, by any other known procedure. Nevertheless, we will do well to admit at once that after any method of cleansing a perfectly sterile hand is an exception. Moreover, it must be remembered that it has been proved over and over again bacteriologically that the surface of a hand cleansed to apparent sterility becomes after a short time re-infected from its own skin follicles in the process of sweating, &c., even if no organisms reach it from without. This all suggests several alternatives. First, that the hands should be washed frequently during all operations of any duration and this should be considered indispensable. Their own impurities which transude to the surface and others accidentally reaching them from the air or casual contact with the patient's skin, even in the case of a surgical incision into healthy tissues, are thus removed by washing over and over again during the operation.

The second alternative is the wearing of impermeable rubber gloves which can be easily sterilised and will retain within them any impurities exuding from the hands until the end of the operation. Having been one of the first to introduce rubber gloves from abroad and for a long time to use them in operating I am not speaking without experience when I say that I distrust them during operation except in very exceptional cases and value them when it is a question of keeping the hands clean *for* operation. The distrust arises from the recognised fact that they are very easily pricked, cut, or torn without the fact being recognised, and if so the fluid derived from the perspiration of the hand, which has been proved to contain numerous bacteria, escapes into the wound more or less concentrated. They are of value, however, when it is a question of dealing with foul parts before operating on clean tissues. They can be used to protect the hands from septic material and then removed. It is for this reason that they are dispensed with in most of my own operations unless I or my assistant happens to have an abrasion on the hand which is not quite healthy. Otherwise they are only used to keep the hands clean for future use. This is the reason why my house surgeons have been directed for years past to wear rubber gloves in the wards and casualty department when manipulating dirty cases. By this rule I believe we secure a higher standard of purity in our hands when it is necessary to employ them to take part in serious operations. That is to say, they are not being constantly re-infected with septic organisms. But there is a further rule which I have carried through for many years as rigidly as possible for myself, my house surgeons, and dressers and which contributes perhaps as much as anything to surgically clean hands. By this rule I train myself and my subordinates so far as possible never to touch a foul dressing with the naked hand. To avoid this there is always a trayful of sterilised forceps and other instruments at hand for every dressing and thus we save the fingers from contamination with pus and other secretions. This, of course, does not obviate the necessity of careful washing of the hands after each dressing, but under this system *there is much less* dangerous material to be washed away. And remember that a hand once fairly infected with bacteria is extremely difficult to disinfect again, even with numerous washings and germicides. If any of you doubt this statement read the experimental work of Heile on this point. This routine is really far less cumbrous than it sounds and with the loyal coöperation of house surgeons, sisters, and dressers runs smoothly enough as far as we are concerned.

Then there is a third alternative—namely, that the hands should come as little as possible in contact with fresh cut surfaces. This is a point which has for a long time appeared to me to receive far less consideration than it deserves. If it be conceded generally, as is the case, that under any or all the methods devised for cleansing the hands a certain suspicion must always remain as to their sterility it ought to follow that manipulation of fresh-cut surfaces with the naked hand should be avoided wherever possible. And certainly the extent to which it can be dispensed with is not generally realised. With a little practice the routine of employment of instruments in place of fingers during an operation can be established and in the end becomes a habit. Very extensive operations lasting a considerable time may be done from beginning to the end without the living tissues being touched by anything but sterile gauze or steel instruments. And in cases of foul wounds the advantage of keeping the hands from contact with infective materials is obvious. To do without using the tactile impressions of the fingers is not always possible in the middle of an operation but their use can, and ought to be, limited for cut surfaces. And even when we must palpate or grasp the deeper part of a wound or abdominal contents we can often do it through a double layer of gauze and so prevent immediate contact with the finger. Within the abdomen this is not always possible, but even here contact with the hands can be guarded against to a much larger extent than is commonly supposed. The old tradition that tissues ought not to be held in forceps for fear of injury to their vitality ought to be exploded.

all know now that clamps may be left, for instance, he intestine or stomach for half an hour at a time out any risk, unless badly constructed.

it one can best illustrate the procedure by taking a 'ular case. Let it be that of an extensive excision of reast. I will briefly describe to you the technique I have employed for many years past in removing this . It is quite possible that the objects of several of the s have been misinterpreted by some bystanders seeing for the first time. Of course, the first aim nowadays noving a cancerous breast is to take it away completely vith it all the various structures about it in which the hatic tracts lie. On this subject in its various bearings we confer in the wards and trace the course of the various hatic channels leading from the organ. Next in im- ance to this is the planning our technique so that even in nost wide-reaching operations the asepsis is so complete primary union is the result. In the first place, , the patient has several hot baths with soft soap plenty of scrubbing. Then the axilla is shaved and the al mentioned above is continued until the operation. But iew of the fact that the skin may not yet be blameless that the hands of assistants and surgeon may come in tact with it inadvertently, I have for years been in the it of throwing over the patient and operating table a ile sheet in which a hole is cut just large enough for the ration. Such a sheet lies closer to the patient's skin and less easily disturbed than a number of towels pinned ether. Except over the area of operation neither the ient's skin, clothes, or the table can be touched, and as sheet is sterile no harm comes from contact with hand, ab, or instruments.

To be steadied for the first incision the slippery breast is isped by the fingers with a swab of gauze interposed. d for the wide dissection of the skin away from the ammary fat before the latter with the breast is dissected the thoracic wall, the skin is best held by the operator in r usual gauze swabs and retracted by the assistant with oks wherever necessary. In no case is it necessary for the nds to touch the raw surfaces. And further on when the east and fat are being separated with or without the ctoral muscle from the thoracic wall it is easier to hold if rapped in a large sheet of gauze which saves the hands from ming in contact with the part of its skin which is being moved and prevents also the latter from touching the raw rface. Finally, as the breast and its peri-mammary fat ang free except for their attachments towards the axilla the st of the clearing round the vessels and nerves can be done y blunt dissection with the closed ends of a broad-bladed urved scissors aided here and there by a snip with the same hile the left hand grasps the breast enveloped in gauze.

But all the time this large wound if left open to the air would be liable to be contaminated by dust or the breath of those closely occupied around it. This is guarded against n this way. As fast as the surgeon makes the wound and the bleeding vessels are clamped the assistant is told to cover it up with gauze and to press upon the latter firmly. This has the double effect of stopping oozing and protecting the surface from infection. For the breath of the surgeon and assistants is certainly a danger. We know that the mouth of even cleanly persons is the seat of an abundant flora. And that these escape in the breath has been proved conclusively.

When the removal of the whole mass has been completed by the final clearance of the axilla to its highest boundary, the gauze is removed and a rapid survey of the whole wound takes place, forceps being removed or fresh bleeding points being clamped if necessary. Then the dried wound is filled again with gauze, one continuous piece from a six-yard roll being used by choice to avoid the risk of any disconnected pieces being overlooked. Then while the assistant presses the flaps together over the gauze the stitches are introduced from one end of the wound to the other. When all are in place the long strip of gauze is drawn out by degrees, bringing away any traces of blood or clot, and while the assistant presses the flaps firmly down upon the thoracic wall the stitches are knotted, the ends are cut, and an aseptic gauze and cellulose packing is firmly bandaged over the whole area of operation without drainage.

This operation is merely taken as an illustration of a lengthy procedure which can be carried out from the beginning to the end without the fingers or anything which touches them being brought in contact with fresh-cut surfaces. This appears to me a most important matter so long as we are obliged to admit that the hand is almost impossible to sterilise and to keep sterile. But while we are able to sterilise knife, forceps, retractors, and scissors and to cover the wound as it is made with sterile gauze we can eliminate the chief risks of infection even of the most extensive wounds.

But there is another point. You notice that only one assistant is allowed to have any part in the operation. This is only to be consistent. For if two hands are to some extent a risk any greater number increase that risk And it is easier for an operator to control the doings of one assistant during an operation than those of several. Moreover, that one assistant knowing that at any moment he may be called upon to help in the most complicated procedure day or night will endeavour day and night to keep his hands out of foul matters or wear gloves where he has perforce to deal with them. Again, he is enjoined to do as I have done myself, for years, before operating—namely, to wash his mouth carefully with an antiseptic, having seen to it that he has no carious teeth, no influenza cold, or other source of sepsis in his air passages. If either of those immediately concerned in an operation have any of these the mouth and nose are covered with a fourfold sterile gauze bandage tied behind the head. I began this form of "muzzle" in exceptional cases eight or ten years ago and now adopt it almost as a matter of routine except in trifling cases.

To illustrate the desirability of this measure I should like to relate to you briefly an experiment of the late Professor Mikulicz, which may not be familiar to some of you and the results of which I saw eight years ago. Being anxious to study the possibility of infection from the surgeon's breath while operating he proceeded as follows. Starting with the ascertained fact that no mouth is free of suspicion as to being septic but that the organisms commonly present in it are not easy to recognise in a moment in a culture and that the air of a room contains many common forms, he conceived the idea of inoculating the mouth with a potent pure culture of a bacillus easily cultivated and easily recognised and which was still so uncommon in rooms set apart for operation that it might be assumed that they would not be present accidentally in the air of the same. One of his assistants having therefore washed his mouth freely with a sterile salt solution in which an abundant culture of the bacillus prodigiosus (producing, as you know, a blood-red pigment) was mixed spoke for ten minutes quietly over four Petri dishes of sterilised agar-agar placed on a table at the same distance from the mouth as an operation wound would be. These dishes were then covered and placed in an incubator. The mouth in these experiments was in the first instance uncovered. The result was remarkable. After incubation the aggregate of colonies of bacillus prodigiosus, with its characteristic colour, on the four dishes was in one experiment 119, in a similar one 119, and in a third 581. The mouth and nose of the experimenter were then covered with a *single* layer of sterile gauze and he spoke over four fresh dishes under similar conditions. After incubation three colonies of bacillus prodigiosus were found on one set and 17 on another. The experimenter then covered his nose and mouth with a *double* layer of sterile gauze and repeated the operation over four fresh dishes for ten minutes, the result being that one set of dishes was found sterile after incubation and another set had only one colony. Control dishes open at the same time showed countless colonies. These experiments were repeated over

Abbreviated Table giving the Results of Experiments in the late Professor Mikulicz's Klinic in Breslau. (1898.)

Ten minutes' exposure of plate while quietly talking.	Badly applied.	Well applied.	Well applied.	Well applied.	Well applied.	Well applied.	Three or four coughs during the ten minutes' exposure.		Operator sneezed once during the ten minutes' exposure.	
Without gauze ...	119	119	581	362	579	233	265	223	Countless.	Countless.
With single layer of gauze	27	3	17	20	42	10	180	0	—	—
With double layer of gauze	24	0	1	0	0	1	0	0	605	325
	Total of colonies on four agar plates.									

of course, as to the crops of micro-organisms they grow in their skin as well as on it and in certain callings we may expect more than others. But for surgical purposes we must assume that *every* skin claims the very closest attention before operation, no matter what class of the community the patient belongs to. And also we must remember that different parts of the body surface vary as to the abundance of their septic flora. This is seen in the experiment alluded to above.

As a general statement, wherever follicles abound in the skin, whether hair, sebaceous, or sweat, there the usual micro-organisms abound and are particularly hard to dislodge. For this reason my own reliance for the cleansing of the skin is placed in the first place upon *repeated* hot baths of the whole body wherever permissible, accompanied by vigorous scrubbing with soft soap and brush. After each bath the area to be uncovered during operation is wrapped up in some sterilised fabric after a couple of hours of soaking in 1 in 30 carbolic lotion. The increased activity of the glands of the skin induced by the baths and wraps brings the secretions to the surface and with them the parasitic organisms. The carbolic solution tends to destroy these and produces besides a certain amount of exfoliation of the superficial epidermic scales which are, as a rule, more or less infected. When this process has been repeated, if possible for some days, the skin is relatively clean. It is finally washed carefully over before operation with spirit. In those cases in which an operation has to be done soon after the patient is first seen the skin is washed with turpentine or ether thoroughly, then soaped, shaved, and scoured over and over again with hard brush and hot water and soft soap, and wrapped in the carbolic towel if possible for two hours before operation, or as near that as time permits. But in both cases, regarding the skin as still possibly impure, I have for many years adopted the practice of covering the whole of the patient's body just before operation with a sterilised sheet of double gauze or cloth through which a hole is cut only large enough to permit of the operation being done through it, while the hands of the operator and assistants are by it prevented from coming in contact with the patient's skin during the operation. This gauze extends from the patient's face to the feet and covers all his clothing and the operating table. It is cut from one of our rollers. In former days we were taught to protect the patient from the chilling effects of the spray by the use of mackintoshes, and to protect both the surgeon's hands, and therefore the patient, from the mackintoshes by covering the latter with towels wet in carbolic solution. The sprays having now gone the sooner the mackintoshes and wet towels go the better, as they cost much labour and time to clean. I have not used these for many years.

(*f*) We now come to the subject which I wish to emphasise particularly to-day—*viz.*, the surgeon's and assistants' hands. And if this is treated somewhat in detail it is because it is admittedly one of the weakest points in our aseptic procedure and everything is not commonly done to minimise risk from the hands that might easily be done as a routine.

The question of the cleansing of the hands in the first instance is of course the most important of all. It is not too much to say that this fact is now fully established and that an enormous amount of laborious bacteriological work has been done to find out the best methods. And the number of valuable essays which have been written on the subject is very large. Having read all the most important and tried many methods I may say that I have more confidence in the results of Ahlfeld's and Fürbringer's experiments (now many years old) of sterilising the hands with very hot *running* water and pure soap and brush, followed by spirit, than in any others. This has to be employed in no perfunctory manner but over and over again for many minutes at a time. The evidence is strong that by this method of disinfection the percentage of organisms clinging to the hands is as small as, or smaller than, by any other known procedure. Nevertheless, we will do well to admit at once that after any method of cleansing a perfectly sterile hand is an exception. Moreover, it must be remembered that it has been proved over and over again bacteriologically that the surface of a hand cleansed to apparent sterility becomes after a short time re-infected from its own skin follicles in the process of sweating, &c., even if no organisms reach it from without. This all suggests several alternatives. First, that the hands should be washed frequently during all operations of any duration and this should be considered indispensable. Their own impurities which transude to the surface and others accidentally reaching them from the air or casual contact with the patient's skin, even in the case of a surgical incision into healthy tissues, are thus removed by washing over and over again during the operation.

The second alternative is the wearing of impermeable rubber gloves which can be easily sterilised and will retain within them any impurities exuding from the hands until the end of the operation. Having been one of the first to introduce rubber gloves from abroad and for a long time to use them in operating I am not speaking without experience when I say that I distrust them during operation except in very exceptional cases and value them when it is a question of keeping the hands clean *for* operation. The distrust arises from the recognised fact that they are very easily pricked, cut, or torn without the fact being recognised, and if so the fluid derived from the perspiration of the hand, which has been proved to contain numerous bacteria, escapes into the wound more or less concentrated. They are of value, however, when it is a question of dealing with foul parts before operating on clean tissues. They can be used to protect the hands from septic material and then removed. It is for this reason that they are dispensed with in most of my own operations unless I or my assistant happens to have an abrasion on the hand which is not quite healthy. Otherwise they are only used to keep the hands clean for future use. This is the reason why my house surgeons have been directed for years past to wear rubber gloves in the wards and casualty department when manipulating dirty cases. By this rule I believe we secure a higher standard of purity in our hands when it is necessary to employ them to take part in serious operations. That is to say, they are not being constantly re-infected with septic organisms. But there is a further rule which I have carried through for many years as rigidly as possible for myself, my house surgeons and dressers and which contributes perhaps as much as anything to surgically clean hands. By this rule I train myself and my subordinates so far as possible never to touch a foul dressing with the naked hand. To avoid this there is always a trayful of sterilised forceps and other instruments at hand for every dressing and thus we save the fingers from contamination with pus and other secretions. This, of course, does not obviate the necessity of careful washing of the hands after each dressing but under this system *there is much less* dangerous material to be washed away. And remember that a hand once fairly infected with bacteria is extremely difficult to disinfect again, even with numerous washings and germicides. If any of you doubt this statement read the experimental work of Heile on this point. This routine is really far less cumbrous than it sounds and with the loyal coöperation of house surgeons, sisters, and dressers runs smoothly enough as far as we are concerned.

Then there is a third alternative—namely, that the hands should come as little as possible in contact with fresh cut surfaces. This is a point which has for a long time appeared to me to receive far less consideration than it deserves. If it be conceded generally, as is the case, that under any or all the methods devised for cleansing the hands a certain suspicion must always remain as to their sterility it ought to follow that manipulation of fresh-cut surfaces with the naked hand should be avoided wherever possible. And certainly the extent to which it can be dispensed with is not generally realised. With a little practice the routine of employment of instruments in place of fingers during an operation can be established and in the end becomes a habit. Very extensive operations lasting a considerable time may be done from beginning to the end without the living tissues being touched by anything but sterile gauze or steel instruments. And in cases of foul wounds the advantage of keeping the hands from contact with infective materials is obvious. To do without using the tactile impressions of the fingers is not always possible in the middle of an operation but their use can, and ought to be, limited for cut surfaces. And even when we must palpate or grasp the deeper part of a wound or abdominal contents we can often do it through a double layer of gauze and so prevent immediate contact with the finger. Within the abdomen this is not always possible, but even here contact with the hands can be guarded against to a much larger extent than is commonly supposed. The old tradition that tissues ought not to be held in forceps for fear of injury to their vitality ought to be exploded.

We all know now that clamps may be left, for instance, on the intestine or stomach for half an hour at a time without any risk, unless badly constructed.

But one can best illustrate the procedure by taking a particular case. Let it be that of an extensive excision of the breast. I will briefly describe to you the technique which I have employed for many years past in removing this organ. It is quite possible that the objects of several of the details have been misinterpreted by some bystanders seeing them for the first time. Of course, the first aim nowadays in removing a cancerous breast is to take it away completely and with it all the various structures about it in which the lymphatic tracts lie. On this subject in its various bearings we often confer in the wards and trace the course of the various lymphatic channels leading from the organ. Next in importance to this is the planning our technique so that even in the most wide-reaching operations the asepsis is so complete that primary union is the result. In the first place, then, the patient has several hot baths with soft soap and plenty of scrubbing. Then the axilla is shaved and the ritual mentioned above is continued until the operation. But in view of the fact that the skin may not yet be blameless and that the hands of assistants and surgeon may come in contact with it inadvertently, I have for years been in the habit of throwing over the patient and operating table a sterile sheet in which a hole is cut just large enough for the operation. Such a sheet lies closer to the patient's skin and is less easily disturbed than a number of towels pinned together. Except over the area of operation neither the patient's skin, clothes, or the table can be touched, and as the sheet is sterile no harm comes from contact with hand, swab, or instruments.

To be steadied for the first incision the slippery breast is grasped by the fingers with a swab of gauze interposed. And for the wide dissection of the skin away from the mammary fat before the latter with the breast is dissected off the thoracic wall, the skin is best held by the operator in our usual gauze swabs and retracted by the assistant with hooks wherever necessary. In no case is it necessary for the hands to touch the raw surfaces. And further on when the breast and fat are being separated with or without the pectoral muscle from the thoracic wall it is easier to hold if wrapped in a large sheet of gauze which saves the hands from coming in contact with the part of its skin which is being removed and prevents also the latter from touching the raw surface. Finally, as the breast and its peri-mammary fat hang free except for their attachments towards the axilla the rest of the clearing round the vessels and nerves can be done by blunt dissection with the closed ends of a broad-bladed curved scissors aided here and there by a snip with the same while the left hand grasps the breast enveloped in gauze.

But all the time this large wound if left open to the air would be liable to be contaminated by dust or the breath of those closely occupied around it. This is guarded against in this way. As fast as the surgeon makes the wound and the bleeding vessels are clamped the assistant is *told to cover* it up with gauze and to press upon the latter firmly. This has the double effect of stopping oozing and protecting the surface from infection. For the breath of the surgeon and assistants is certainly a danger We know that the mouth of even cleanly persons is the seat of an abundant flora. And that these escape in the breath has been proved conclusively.

When the removal of the whole mass has been completed by the final clearance of the axilla to its highest boundary, the gauze is removed and a rapid survey of the whole wound takes place, forceps being removed or fresh bleeding points being clamped if necessary. Then the dried wound is filled again with gauze, one continuous piece from a six-yard roll being used by choice to avoid the risk of any disconnected pieces being overlooked. Then while the assistant presses the flaps together over the gauze the stitches are introduced from one end of the wound to the other. When all are in place the long strip of gauze is drawn out by degrees, bringing away any traces of blood or clot, and while the assistant presses the flaps firmly down upon the thoracic wall the stitches are knotted, the ends are cut, and an aseptic gauze and cellulose packing is firmly bandaged over the whole area of operation without drainage.

This operation is merely taken as an illustration of a lengthy procedure which can be carried out from the beginning to the end without the fingers or anything which touches them being brought in contact with fresh-cut surfaces. This appears to me a most important matter so long as we are obliged to admit that the hand is almost impossible to sterilise and to keep sterile. But while we are able to sterilise knife, forceps, retractors, and scissors and to cover the wound as it is made with sterile gauze we can eliminate the chief risks of infection even of the most extensive wounds.

But there is another point. You notice that only one assistant is allowed to have any part in the operation. This is only to be consistent. For if two hands are to some extent a risk any greater number increase that risk And it is easier for an operator to control the doings of one assistant during an operation than those of several Moreover, that one assistant knowing that at any moment he may be called upon to help in the most complicated procedure day or night will endeavour day and night to keep his hands out of foul matters or wear gloves where he has perforce to deal with them. Again, he is enjoined to do as I have done myself, for years, before operating—namely, to wash his mouth carefully with an antiseptic, having seen to it that he has no carious teeth, no influenza cold, or other source of sepsis in his air passages. If either of those immediately concerned in an operation have any of these the mouth and nose are covered with a fourfold sterile gauze bandage tied behind the head. I began this form of "muzzle" in exceptional cases eight or ten years ago and now adopt it almost as a matter of routine except in trifling cases.

To illustrate the desirability of this measure I should like to relate to you briefly an experiment of the late Professor Mikulicz, which may not be familiar to some of you and the results of which I saw eight years ago. Being anxious to study the possibility of infection from the surgeon's breath while operating he proceeded as follows. Starting with the ascertained fact that no mouth is free of suspicion as to being septic but that the organisms commonly present in it are not easy to recognise in a moment in a culture and that the air of a room contains many common forms, he conceived the idea of inoculating the mouth with a potent pure culture of a bacillus easily cultivated and easily recognised and which was still so uncommon in rooms set apart for operation that it might be assumed that they would not be present accidentally in the air of the same. One of his assistants having therefore washed his mouth freely with a sterile salt solution in which an abundant culture of the bacillus prodigiosus (producing, as you know, a blood-red pigment) was mixed spoke for ten minutes quietly over four Petri dishes of sterilised agar-agar placed on a table at the same distance from the mouth as an operation wound would be. These dishes were then covered and placed in an incubator. The mouth in these experiments was in the first instance uncovered. The result was remarkable. After incubation the aggregate of colonies of bacillus prodigiosus, with its characteristic colour, on the four dishes was in one experiment 119, in a similar one 119, and in a third 581. The mouth and nose of the experimenter were then covered with a *single* layer of sterile gauze and he spoke over four fresh dishes under similar conditions. After incubation three colonies of bacillus prodigiosus were found on one set and 17 on another. The experimenter then covered his nose and mouth with a *double* layer of sterile gauze and repeated the operation over four fresh dishes for ten minutes, the result being that one set of dishes was found sterile after incubation and another set had only one colony. Control dishes open at the same time showed countless colonies. These experiments were repeated over

Abbreviated Table giving the Results of Experiments in the late Professor Mikulicz's Klinik in Breslau. (1898.)

Ten minutes' exposure of plate while quietly talking.	Badly applied.	Well applied.	Well applied.	Well applied.	Well applied.	Well applied.	Three or four coughs during the ten minutes' exposure.		Operator sneezed once during the ten minutes' exposure.	
Without gauze ...	119	119	581	352	679	233	255	223	Countless.	Countless.
With single layer of gauze	27	3	17	20	42	10	180	0	—	—
With double layer of gauze	24	0	1	0	0	1	0	0	505	325
	Total of colonies on four agar plates.									

and over again and gave in all cases practically the same results. But there was a remarkable exception. In one experiment with a double layer of gauze over the nose and mouth the operator sneezed and 506 and 325 colonies were found where the dishes had been practically sterile before. Having seen the result of these cultivations myself and examined the dishes I confess I was impressed with the number of organisms which could be breathed out of the mouth in talking and the simplicity of the means of arresting them which I have since practised.

Now if these easily recognisable bacilli can be distributed thus it is fair to assume that those numerous pathogenic organisms which we know flourish in almost every mouth can also be sown broadcast in the same way. The moral to be drawn from all this is: first, that operators and assistants should look to the cleanness of their mouths; secondly, that as little talking as possible should be indulged in in the neighbourhood of an open wound; and thirdly, that at least where there is a suspicion of an unusual infectivity of the operator's mouth or air passages, if not in every trifling operation, these should always be covered with some porous protector.

But when all is said and done the fact remains that when wounds are infected from without it is a question in most cases of a direct contagion with hands, instruments, or other bodies applied to it rather than through matters carried through the air. It is for this reason that stress has been laid upon the urgent need of using sterilisable instruments instead of the hands wherever possible. That this can be done has been proved in much of my own work and I should like to see the practice extended. To work aseptically means to a large extent a constant and serious consideration day and night how we may best prevent ourselves from becoming the carriers of infection. And if we are successful in this our paraphernalia and ritual become simple and the simpler the better, a chain being only as strong as its weakest link. If these remarks were not addressed to my own class who are constantly present in the operating theatres and wards it might be necessary to go more into detail. The aim here has been rather to point out the principles which underlie details with which you ought to be familiar.

INTERNAL SECRETION AND THE DUCTLESS GLANDS.[1]

BY SWALE VINCENT, M.B. LOND., D.SC. EDIN.,
PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF MANITOBA,
WINNIPEG, CANADA.

PART I.—INTRODUCTORY.

Secretion and internal secretion.—By the term "secretion," applied in its most general sense, is understood the separation out of materials from the animal body. This, the original conception of the process, has been long extended to include also the preliminary preparation or more or less complete elaboration of the materials which are supplied by the blood circulating through the organ. Johannes Müller[2] pointed out that the whole process of secretion consists of two phases, the production of certain materials, and the casting out of these materials upon a surface either in the interior or upon the exterior of the body. The first phase he called "secretion," the second "excretion." In some cases the material eliminated might be found in the blood stream and was simply separated by the tissues of the organ and passed out. This applied to the urea of the urine, which was looked upon by Müller as a pure case of "excretion." The distinction thus set up has, however, not been retained in a very strict manner. The term "excretion" is mostly applied at the present time in rather a vague kind of way to denote the process of elimination of waste products from the body. The idea of secretion has from the earliest period of physiology been associated with what are called "glandular" organs. There is no need in this place to *describe a "gland" in any detail.* Its essential is a surface provided with epithelial cells, usually of a columnar or cubical shape, and characterised by the presence of tiny granules of the substance to be secreted or its precursor. This surface may be a simple pouch or may be very complicated by the extension of the involuted portion and by the growth of side branches, as in the case of the compound racemose glands. In these glands the terminal portion of the tubes or "alveoli" are the secreting portions, while the tubes leading to the exterior are the "ducts."

The term gland was applied in the earlier days of anatomy *to a very varied group of structures* which resembled each other in certain general external characters.[3] Then it was discovered that some of these organs possessed a "duct" by means of which a "secretion" was poured out. Such a structure was, and is still, regarded as the most typical form of "gland." But others of these glands possessed no duct and were therefore called "ductless glands," or in Germany more usually "Blutgefüssdrüsen." The hypothesis soon arose that in these cases the specific secretion is passed into the blood stream and the process is termed "internal secretion." The term "internal secretion" was, however, so far as I can ascertain, first used by Claude Bernard[4] who described the glycogenic function of the liver as the "sécrétion interne," while he referred to the preparation of the bile as the "sécrétion externe,"[5] and was subsequently *extended by Brown-Séquard and by Schiff to apply* to the process of secretion in the "ductless glands." In some cases the material secreted by the ductless glands is passed, not directly into the blood stream, but indirectly by way of the lymphatic vessels. This applies to the specific secretion of the thyroid gland.

The "ductless glands," according to the original conception, were the thyroids, the pituitary body, the suprarenal capsules, the spleen, the thymus gland, and the lymphatic glands. But soon it was discovered that some of these had not a glandular structure—i.e., they did not consist of epithelial "secreting" cells; some, for example, such as the spleen and the lymphatic glands, belonged to another category of organs.[6] On the other hand, some new organs, such as the carotid and coccygeal bodies and the parathyroids, have been *added to the list.* The thymus occupies a quite anomalous position. It is in its earlier stages an "epithelial" organ, and possibly has a secretory function, but later in the course of its development it becomes for the most part a mass of adenoid tissue. The structures usually included at the present time under the title of "ductless glands" are the thyroid gland, the parathyroid glands, the cortical suprarenal gland, the medullary suprarenal gland, the pituitary body, the carotid and coccygeal bodies, and possibly the thymus. Some authors would reduce this list by cutting out the medulla of the suprarenal capsule and the carotid gland on the ground that they consist not of epithelial secreting cells but of a special type of tissue—the chromaffin tissue.[7] It is believed that these "ductless glands" manufacture and pour, directly or indirectly, into the blood stream some substance or substances which are of service to the economy, either by supplying a need or by destroying other substances which are needless or positively harmful. This last function, that of tgiftung," is usually ascribed to the thyroid and para- oid, and there is some little evidence that the same tion may be performed by the cortical suprarenal gland. nothing has been said so far to preclude our attributing uscles, nerves, and indeed every tissue in the body an nally secreting function. It is obvious that in the dest sense of the expression all tissues and organs of body may be said to have an internal secretion, i.e., blood which leaves by their veins contains different nical substances from that which enters by their ries. In many cases it may be reasonably assumed that new substances are in some degree specific for the par- lar tissue. But the idea of internal secretion has in some ances been extended beyond the limits defined by the s at our disposal. In some cases we may be guided to e extent by the structure of the organ or tissue in ques- . If it be composed of epithelial cells of a glandular racter we may reasonably be prepared to attribute to it function of internal secretion, even though the nature of secretion be quite unknown. In other cases if some stance not commonly found in, or extractable from, the ues of the body be manufactured in a tissue or organ we strongly incline to the view that the said substance is nternal secretion, and this even if the tissue in question arts somewhat widely from the glandular type. As an mple of such a tissue may be adduced the medullary rarenal gland. Extracts of many tissues will, when cted into the blood-vessels of a living animal, cause a ering of the blood pressure. This is markedly so, for mple, in the case of the nervous tissues—but it would rash to allege that to manufacture the depressor substance ne of the functions of the nervous system. On the other d, from some organs such very exceptional substances be extracted, and such very unusual physiological cts can be produced by their administration, that we justified in interpreting these effects as an indication of function of the organ, and in regarding the substances the products of its "internal secretion." This, again, plies to the medullary suprarenal. But a typical gland ving a duct and performing "external secretion" may ssess in addition the function of "internal secretion." us the liver has, as pointed out by Claude Bernard and erred to above, besides the formation of the bile the cogenic function. It has the still further duty to render nocuous the end products of proteid metabolism. One of ese is ammonia; this is converted in the liver into urea, that the distinctly poisonous ammonia is transformed this organ into the comparatively harmless urea. This an example of what may be called a "negative internal cretion."

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[1] Reprinted, with some alterations and additions, from the official reports of the Fifteenth International Congress of Medicine, Lisbon, April, 1906, Section III., Pathology.

[2] "The matters separated from the blood by the action of a secreting organ are: 1. Substances which existed previously in the blood and are merely eliminated from it; such are the urea, which is excreted by the kidneys, and the lactic acid and its salts, which are components both of the urine and of the *cutaneous* perspiration. These are called excretions, the process of their separation from the blood, excretion. 2. Substances which cannot be simply separated from the blood since they do not pre-exist in it, which, on the contrary, are newly produced from the proximate components of the blood by a chemical process; such are the bile, the semen, the milk, mucus, &c. These are called 'secretions.'" Elements of Physiology, Translation by W. Baly, London, 1838, vol. i., p. 429.

[3] "Die Classe der Drüsen ist eine derjenigen, welche eine Wissenschaft in ihrer ersten Jugend leichtsinnig schafft, und welche zu begrenzen und rechtfertigen ihr in Zeiten der Reife grosse Sorgen und Mühe kostet. Man hatte anfangs nur die äussere Form im Auge und nannte jedes weiche, rundliche, gefässreiche und daher röthliche oder rothe Organ eine Drüse, und das Gewebe solcher Organe drüsig." Henle. Sömmerings Bau des Menschlichen Körpers, Band vi., p. 889.

[4] Leçons de Physiologie Experimentale, 1855, tome I., p. 96.

[5] Chez les animaux, la sécrétion glycogénique est une sécrétion interne, parce qu'elle se déverse directement dans le sang. J'ai considéré le foie, tel qu'il se présente chez les animaux vertébrés élevés, comme un organe sécréteur double. Il semble réunir, en effet, deux éléments sécrétoires distincts, et il représente deux sécrétions: l'une externe, qui coule dans l'intestin, la sécrétion biliaire; l'autre interne, qui *se verse dans le sang, la sécrétion* glycogénique. *Claude* Bernard, loc. cit.

[6] According to modern nomenclature, to the "hæmolymph" series of organs. See Vincent and Harrison, Journal of Anatomy and Physiology, vol. xxxi., 1897, p. 176; Lewis, Internationale Monatsschrift für Anatomie und Physiologie, Band xx., 1902.

[7] Kohn: Archiv für Mikroskopische Anatomie, Band lxii., 1903.

The most usually quoted example, however, of a gland hich has both an external and an internal secretion is e pancreas. A relation between diseases of the pancreas d diabetes had long been suspected,[8] but Minkowski d Mehring[9] first definitely showed that complete removal the pancreas in the dog, cat, and pig is followed by abetes having the usual symptoms of that disease in man. hat this is caused by the absence of an internal secretion proved by the facts that it does not occur if the gland be ft *in situ* and the duct tied, nor does it occur if a portion f the pancreas be grafted in some situation remote from its ormal position (e.g., underneath the skin or in the peri- oneal cavity). How the internal secretion of the pancreas ormally prevents glycosuria is not clear. We can only say hat it exerts some influence upon the carbohydrate meta- olism, either by favouring the formation of glycogen in the iver from the dextrose taken to it by the portal vein or y furthering the oxidation of dextrose in the tissues generally.[10]

The pancreas is usually considered to consist of two eparate and distinct kinds of tissue, the secreting alveoli and the islets of Langerhans,[11] and it is supposed by many writers that it is to these latter and not to the glandular lveoli that one must attribute the internally secreting unction which concerns the carbohydrate metabolism. It is lso believed by some authors that the kidney has an internal secretion. Tigerstedt and Bergmann[12] state that a substance may be extracted from the kidneys of rabbits which when injected into the veins of a living animal causes a rise of blood pressure. They conclude, therefore, that a substance, for which they suggest the name "renin," is normally secreted by the kidney into the renal blood and that this substance causes a vaso-constriction. The rise of blood pressure is not very marked or very constant. Vincent and Sheen[13] found, however, distinct evidence of the existence of a pressor substance in the kidney. Tigerstedt and Bergmann state that the substance is destroyed by boiling, and it is certainly true here as with other tissues, with the exception of suprarenal medulla and pituitary infundibulum, that if the extract is boiled one is more likely to get a depressor effect from it. Vincent and Sheen found, in fact, that one frequently obtains pressor effects from the injection of unboiled animal extracts, while the usual effect of boiled extracts is depressor. But it must be remembered that if one simply makes an extract with cold normal saline solution one has to deal with the nucleo-proteids in addition to other substances. On the first injection of such a "proteid" extract one gets a fall of blood pressure. If a second injection be made immediately one frequently gets a rise instead of a fall.[14] It is probable that this explains, at any rate to some extent, the rise obtained by Tigerstedt and Bergmann and by Vincent and Sheen with "proteid" extracts of various tissues. It is, moreover, doubtful whether these physiological or rather pharmacological results have any very important bearing upon the question of the internal secretion of the different organs.[15]

But arguments based upon experimental work of a different character have been urged in favour of the view that the kidneys have an internal secretion. In 1869 Brown-Séquard[16] had expressed the opinion that the phenomena of uræmia were in part due to "l'existence de changements chimiques morbides du sang remplaçant la sécrétion interne normale." Later in 1892 Brown-Séquard and d'Arsonval[17] showed that "le rein a une sécrétion interne d'une grande utilité." They removed both kidneys from rabbits and guinea-pigs. Then they administered to some of these by subcutaneous injection diluted juice of kidney from a normal animal of the same species, while they left others untouched. They found that those animals which had received the injection survived one or two days longer than the others. The phenomena of uræmia were of slower development in those which survived the longer, owing to treatment with kidney extract. Meyer[18] found that injections of kidney extract, of normal blood, and of renal venous blood from a normal animal have the immediate effect of checking the Cheyne-Stokes respiration which is such a striking symptom of uræmia. Vitzou[19] found that in rabbits and dogs the injection subcutaneously and intravenously of defibrinated blood from the renal vein of a normal animal prolonged the life of a nephrectomised animal in a very striking manner. Thus in one rabbit the survival was 42½ hours longer than was the case with the control, which had like the first undergone double nephrectomy. Vitzou concludes that the kidney has an important internal secretion, the absence of which plays an important part in the causation of uræmia.

In some cases, too, there is considerable reason for ascribing an internal secreting function to an organ which is not, properly speaking, a gland at all. Thus there is evidence that the testis and the ovary perform internal secretion. Brown-Séquard[20] found that subcutaneous injections of extracts of testis exercised considerable influence upon the general health as well as the muscular power and mental activity. The experiments were performed upon himself when he was 72 years of age and he describes very marked "rejuvenating" effects. It is probable that a good deal of Brown-Séquard's personal benefit under this treatment is to be attributed to suggestion. More recently Poehl[21] asserts that he has prepared a substance, *spermin*, to which he gives the formula $C_6H_{14}N_2$, which has a very beneficial effect upon the metabolism of the body. He believes that this spermin is the substance which gives to the testicular extracts prepared by Brown-Séquard their stimulating effect. He claims for this substance an extraordinary action as a physiological tonic.[22] Zoth[23] and also Pregel[24] seem to have obtained definite proof, by means of ergographic records, of the stimulating action of the testicular extracts upon the muscle-nerve apparatus in man. They find that injection causes not only an increase in the muscular work but lessens the subjective fatigue sensations.

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[8] Lancereaux, Bulletin de l'Académie, vol. xix., 1888, p. 583; Baumel, Montpellier Médical, Oct. 16th.

[9] Archiv für Experimentelle Pathologie und Pharmakologie, Leipzig, 1890, Band xxvi., S. 371; see also Minkowski, ibid., 1893, Band xxxi., S. 85; Dominicis, Giornale Internazionale delle Scienze Mediche, Napoli, 1889.

[10] Schäfer: Text-book of Physiology, vol. i., p. 929, 1898.

[11] See, however, Dale, Proceedings of the Royal Society of London, vol. lxxiii., No. 499, Feb. 24th, 1904, and Philosophical Transactions.

[12] Skand: Archiv für Physiologie, 1898, Band viii., S. 223.

[13] Journal of Physiology, vol. xxix., No. 3, April 23rd, 1903.

[14] Vincent and Cramer, Journal of Physiology, vol. xxx., No. 2, 1903.

[15] In some cases the fact that extracts of an organ when injected into the blood-vessels of a living animal cause a lowering of the blood pressure has been somewhat hastily assumed to indicate an internal secretion of the organ in question. Thus, Svehla in regard to thymus. See Osborne and Vincent, Journal of Physiology, vol. xxv., 1900; Vincent and Sheen, loc. cit.; Vincent and Cramer, loc. cit.

[16] Comptes Rendus de la Société de Biologie, pp. 421 et 422, Paris, Juin, 1889.

[17] Comptes Rendus de l'Académie des Sciences, tome cxv., pp. 1399-1400; Archives de Physiologie, 1893, p. 202.

[18] Archives de Physiologie, 1893, p. 761.

[19] Journal de Physiologie et de Pathologie Générale, 1901, vol. iii., p. 901.

[20] Archives de Physiologie, vol. xxi., p. 651, 1889; Comptes Rendus de la Société de Biologie, pp. 415, 420, 430, et 454, 1889; THE LANCET, July 20th, 1889, p. 105.

There are, however, other reasons for thinking that the testis pours into the blood stream certain materials which are essential for the proper development and maintenance of vigour. The condition of persons in whom the testes have not descended or from whom the testes have been removed is strong evidence that, besides the function of the preparation of the specific reproductive elements, the organ has other important duties to perform. Shattock and Seligmann[25] have studied the effect of occlusion of the vasa deferentia in sheep and fowl and find that this does not hinder the full development of the secondary male characters. Since castration does hinder this development it follows that the metabolic results arising from the functions of the testis must be attributed to the elaboration of an internal secretion and its absorption into the general circulation. According to these authors the interstitial cells of the stroma have characters so unmistakeably glandular that some secreting function must be assigned to them and they may possibly be responsible for the internal secretion just referred to.

There is an important difference in the result obtained when the whole cord is ligatured from that obtained when the vas only is tied. In the former case all sexual activity comes to an end; in the latter after a short interval of time the animal remains just in the same condition as the control, although, of course, reproduction is impossible in both cases. After ligature of the vas the interstitial cells remain unaltered although the spermatogenic tissue degenerates.[26] In the case of the ovary Knauer[27] has shown that removal of the organ prevents the occurrence of the œstrous cycle but that if ovarian tissue be grafted into the muscles of the animal the "periods" commence again. This is almost positive evidence that the occurrence of the phenomenon depends upon some material manufactured in, and poured out into the blood by, the ovary and that this pouring out causes important changes in the rest of the genital system.

Within the last two or three years a considerable amount of work has been done upon the structure and functions of the corpus luteum. The idea that this body might be an organ with an internal secretion was first conceived by Gustav Born[28] who suggested that the function of the internal secretion was to subserve the fixation and development of the impregnated ovum in the uterus. This idea was never published but was bequeathed to Fraenkel[29] to work out. This author believes that not only does the corpus luteum minister to the special needs of the gravid uterus but that upon its secretory activity depends also the occurrence of the œstrous cycle. The arguments put forward are not entirely satisfactory and it is not easy to see how this author would explain the occurrence of the first œstrus in young animals.[30] The theory that the corpus luteum is a gland with an internal secretion has also been brought forward by Prenant.[31] This writer points out that morphological characters are those of a glandular apparatus without a duct; and that the cells of the corpus luteum elaborate material in their interior as has been recently described by Regaud and Policard.[32] Prenant believes th the purpose of the corpus luteum is probably to prevent ovulation in the period between successive œstrous periods or during pregnancy. This theory is supported by Sandes who worked at the formation of the corpus luteum Dasyurus. Why it should be necessary for an animal elaborate an organ having this function does not seem clear especially in view of the fact stated by Sandes[34] that t ova degenerate in the ovary and are not preserved f succeeding ovulations.

Working in conjunction with Dr. F. H. A. Marshall I have performed a series of experiments in which extracts made from ovaries in a pro-œstrous or œstrous condition were injected into a bitch at a period as remote as possible from the œstrous one. In some of these experiments a swelling of the vulva and other slight signs of the œstrous condition were induced but the results were not decisive enough to warrant us publishing them. Since then Marshall and Jolly[35] report that "heat" or a transient condition resembling it can be produced by the injection of such extracts and that when œstrous or pro-œstrous ovaries are successfully grafted into an animal previously deprived of its ovaries the condition produced is identical with a normal heat and that irrespective of the situation of the graft. These authors consider that the ovary is an organ providing an internal secretion which is elaborated by the follicular epithelial cells or by the interstitial cells of the stroma. This secretion circulating in the blood induces menstruation and heat. After ovulation, which takes place during œstrus, the corpus luteum is formed and this organ provides a further secretion whose function is essential for the changes taking place during the attachment and development of the embryo in the first stages of pregnancy.

A recently discovered and extremely interesting example of internal secretion is furnished by the mechanism of pancreatic secretion. The secretion of the pancreatic juice is normally evoked by the entrance of acid chyme into the duodenum and is proportional to the amount of acid entering.[36] This secretion does not depend on a nervous reflex and occurs when all the nervous connexions of the intestine are destroyed.[37] The contact of the acid with the epithelial cells of the duodenum causes in them the production of a body (secretin) which is absorbed from the cells by the blood current and is carried to the pancreas, where it acts as a specific stimulus to the pancreatic cells, exciting a secretion of pancreatic juice proportional to the amount of secretin present.[38] There are probably numerous other examples of this chemical interaction of certain tissues with others more or less remote and many animal processes at present attributed to nervous influences or not understood at all will in future, it may be surmised, be explained by reference to some kind of internal secretion.[39]

THE SUPRARENAL CAPSULES.

A. Effects of ablation and disease.—In considering the facts at our disposal bearing upon the probable functions of the suprarenal capsule it is in the first place essential to insist upon the dual nature of the organ. Each capsule, in fact, consists of two separate and distinct organs, developed in quite different ways, having a different histological structure, presenting different micro-chemical reactions, and characterised by totally distinct chemical and pharmacological properties.[40] Practically, all our physiological nformation has reference to the medullary portion. The ubject of the comparative anatomy and physiology cannot be treated here.[41]

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[21] Zeitschrift für Klinische Medicin, 1894, Band xxvi., S. 135.

[22] See also Dixon, Journal of Physiology, vol. xxvi., 1900–01, p. 244.

[23] Pflüger's Archiv, 1896, Band lxii., S. 325.

[24] Ibid., S. 379.

[25] Proceedings of the Royal Society, vol. lxxiii., No. 488, Feb. 11th, 1904.

[26] These results pointing distinctly to an internal secretion on the part of the interstitial cells have been furnished to me by Dr. Copeman whose work has not yet been published. His results are generally in agreement with those of Ancel and Bonin, Recueil de Médecine Vétérinaire, Jan. 15th, 1904.

[27] Centralblatt für Gynäkologie, 1896, vol. xx., S. 524, No. 20; ibid., 1898, vol. xxii., p. 201; Wiener Klinische Wochenschrift, 1899, xii. Jahrg., p. 1219, No. 49; Archiv für Gynäkologie, Band lx., Heft 2. See also Steven's Journal of Obstetrics and Gynæcology, vol. v., No. 1, January, 1904, p. 11.

[28] Cited by L. Fraenkel, Archiv für Gynäkologie, Band lxviii., Heft 2, S. 438, 1903.

[29] Loc. cit.

[30] Marshall: Quarterly Journal of Microscopical Science, 1904.

[31] Revue Générale des Sciences, 1898, pp. 646–50.

[32] Comptes Rendus, Association d'Anatomie, 3ème session, 1901, pp. 45–61; Comptes Rendus de la Société de Biologie, tome liii., 1901, pp. 615–16; ibid., tome liii., pp. 470 et seq.

[33] Proceedings of the Linnæan Society of New South Wales, 1903, vol. xxviii., part 2, No. 110.

[34] Loc. cit.

[35] Proceedings of the Royal Society, 1905.

[36] Pawlow: Die Arbeit der Verdauungsdrüsen, Translation from the Russian, Wiesbaden, 1898. Also Le Travail des Glandes Digestives, Paris, 1901.

[37] Bayliss and Starling: Journal of Physiology, vol. xxviii., 1902, p. 353.

[38] Bayliss and Starling, loc. cit.

[39] Starling has recently found that injection of extracts of fœtus into a virgin rabbit causes growth of the mammary glands, while such injections into a multiparous animal cause secretion of milk. He suggests the name "hormone" (from ὁρμάω = I excite or arouse) for these various substances which act as chemical messengers. See Croonian Lectures, 1905, also THE LANCET, 1905.

[40] This view is now generally accepted, but in 1896 the subject had not passed out of the realm of discussion. See Creighton, Goulstonian Lectures, 1895, Brit. Med. Jour., March 23rd, 1895; also Swale Vincent, Birmingham Medical Review, August, 1896.

Since the time of Addison,[42] who described the disease now known by his name, numerous extirpation experiments have been performed upon many kinds of animals with omewhat varying results.[43] The general result, however, is hat death takes place with great rapidity in most animals after double suprarenal removal. In all these experiments both medulla and cortex have, of course, been removed. But it is important to note that an animal may survive the removal of both suprarenal capsules. Thus the results of Brown-Séquard,[44] who found removal to be rapidly fatal, could not be confirmed by certain other workers of this period.[45] Although later work[46] seems to have confirmed in a general way the statements of Brown-Séquard, yet we cannot disregard the very considerable number of exceptions. Moore and Purinton,[47] for example, record survival of a goat for 22 days after complete removal of both suprarenal capsules and they state "survival would apparently have been indefinite, for the animal, so far as could be observed, was unaffected by the loss of the glands. It is, of course, impossible to conclude, notwithstanding the most careful post-mortem examination, that the animal did not possess *somewhere* accessory suprarenals, which vicariously took on the functions of the removed glands. Still, we are inclined to regard such a solution of the survival as improbable; certainly, there were no glands visible to us at all resembling suprarenals in either thorax or abdomen and nothing which gave a positive answer to the chemical test for the suprarenal chromogen. Any possible accessory glands must, therefore, have been either microscopic in size or situated outside the regions where their existence was to be expected."

With regard to the presence of accessory organs we must bear in mind that if the medulla is the essential or more important organ, then, strictly speaking, there are *always* accessory organs left behind after removal of the suprarenal capsules; for groups of "chromaffin cells" are found in the sympathetic ganglia of man and mammals,[48] birds, and other vertebrates. Recently, too, Zuckerkandl[49] has described what he calls "Nebenorgane des Sympathicus" in the human subject. These consist of chromaffin cells and extracts from them have the same powerful effect upon the blood pressure as have extracts of the medulla of the suprarenal capsule.[50] On the other hand, the ordinary "accessory suprarenal" consists entirely of cortex and this probably applies to those which may be found occasionally in the neighbourhood of the reproductive organs.[51] The symptoms described by most authors are almost identical with those of pronounced Addison's disease—muscular weakness, loss of appetite, loss of tone of the vascular system, and, as a primary cause of death, paralysis of the respiratory muscles. Moore and Purinton[52] working with cats found extensive ante-mortem clotting in the right heart, superior vena cava, or pulmonary artery in three out of seven experiments, and in these cases the duration of life was shorter than in those in which no such clots were found. Pigmentation of the skin has been recorded by Nothnagel[53] after crushing of the capsules and also by F. and S. Marino-Zucco[54] after inoculating the suprarenals of rabbits with "pseudo-tubercle bacillus." Tizzoni[55] also states that he has obtained skin pigmentation in rabbits.

B. General physiological effects of extracts of the suprarenal capsules: Effects of subcutaneous injections.—After sufficiently large doses of suprarenal extract injected subcutaneously we get slowed muscular movements, paresis, and finally paralysis of the limbs (hind limbs always becoming affected first), bleeding from the mouth and nostrils, hæmaturia (not observed in rabbits), breathing rapid and shallow at first, finally becoming deep and infrequent, and occasionally convulsions resembling those of asphyxia preceding death, before which the temperature often falls very low. The paralysis is central. The effects, just as those to be presently described obtained on intravenous injection, are due to the medulla of the suprarenal capsules, the cortex containing no toxic substance. The effects are specific to the suprarenals and not common to other gland extracts. The toxic material is easily eliminated in some way or other; this accounts for the large dose required and the ease with which recovery takes place. Idiosyncrasy plays a large part in the conditions. A partial immunity can be set up by giving doses insufficient to kill.[56] In 1901 Blum[57] discovered that the subcutaneous administration of extracts of the suprarenal bodies produces diabetes in rabbits and dogs.[58] Working with adrenalin, the isolated active principle of the suprarenal medulla (*vide infra*), Drummond[59] found congestion of organs and histological changes which indicate that the substance acts as a protoplasmic poison.[60]

C. Special physiological effects of extracts of the suprarenal capsules: Effects of intravenous injections.—Our knowledge of the effects of intravenous injection of suprarenal extracts dates from the discovery of Oliver and Schäfer[61] in 1894 that such injection produces a powerful action on the muscular system, especially on the muscular walls of the blood-vessels and the heart. The extracts have an action upon skeletal muscle comparable to that produced by a small dose of veratria. Upon the heart the effect differs according as the vagi are cut or uncut. When the vagi are uncut the action of the extract is to inhibit the auricular contractions, while the ventricle continues beating with an independent slow rhythm and the pulse is very slow. If the vagi are cut or if their cardiac ends be paralysed by atropine the effect on the heart is just the reverse, and this produces a rise of the blood pressure. But there is also a marked direct effect upon the arteries shown by a considerable rise of blood pressure even with uncut vagi. "But with the vagi cut or paralysed by atropine the rise can only be characterised as enormous."[62] The contraction of the arterioles is due to a peripheral action of the drug, since it takes place when the central nervous system is destroyed.[63] The effect on the blood pressure passes off in a few minutes and, according to Schäfer,[64] the most probable explanation of the disappearance of the effect seems to be that the active principle becomes packed away and eventually rendered innocuous in certain organs. That the muscles take most part in this storage is probable from the fact that the physiological effects upon the skeletal muscles are manifested for a long time after the effects upon the heart and arteries have disappeared. The physiologically active material is yielded entirely by the medulla of the capsules,[65] the cortex being inactive. It is found, too, in the bodies of elasmobranch fishes which correspond morphologically to the medulla of the mammalian organ[66] and probably in chromaffin tissue generally.[67]

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[41] The following papers may be consulted: Swale Vincent, Proceedings of the Royal Society, vols. lxvi. and lxvii.; Internationale Monatsschrift für Anatomie und Physiologie, 1898, Band xv., Hefte 10 und 11; Kohn, A., Archiv für Mikroskopische Anatomie, Band lxii., 1903; also Vincent, Journal of Anatomy and Physiology, vol. xxxviii., 1904.

[42] On the Constitutional and Local Effects of Disease of the Suprarenal Capsules, London, 1855.

[43] For a résumé of the history see Schäfer's Text-book, vol. i., p. 948, Edinburgh and London, 1898.

[44] Comptes Rendus de l'Académie des Sciences, Paris, 1856; pp. 422 and 542; Archives Générales de Médecine, Paris, 1856, Journal de la Physiologie de l'Homme, Paris, 1858, tome i., pp. 160.

[45] Philippeaux, Comptes Rendus de l'Académie des Sciences, Paris, 1856; Gratiolet, ibid; G. Harley, British and Foreign Medico-Chirurgical Review, London, 1858, vol. xxi., p 204.

[46] Tizzoni, Archives Italiennes de Biologie, Turin, 1886, tome x., p. 372; Beiträge zur Pathologischen Anatomie und zur Allgemeinen Pathologie; Rath, Jena, 1889, Band vi., S. 1.; Abelous and Langlois, Comptes Rendus de la Société de Biologie, Paris, 1891, p. 835; 1892, p. 323; Langlois, ibid., 1893, p. 444; also in *tome* iv. of Travaux du Laboratoire de Ch. Richet, 1897. Schäfer, Text-book of Physiologie, vol. i., p. 949.

[47] American Journal of Physiology, vol. iv., 1900, p. 57, and vol. v., 1901, p. 182.

[48] Stilling, Revue de Médecine, November, 1870; Recueil inaug. de l'Université de Lausanne, 1892; Anatomischer Anzeiger, Band xv., 1899 Kohn, Archiv für Mikroskopische Anatomie, Band lvi., 1900, S 81; Anatomischer Anzeiger, Band xv., Nov. 21st, 1899. Kose, Anatomischer Anzeiger, Band xxii., 1902, S. 162.

[49] Verhandlungen der Anatomischen Gesellschaft, Bonn, Mai, 1901. Jena.

[50] Biedl and Wiesel: Archiv für die Gesammte Physiologie, Band xci., 1902.

[51] There can be no doubt that in many animals removal of the suprarenal capsules is a very difficult and dangerous operation, owing to the close proximity of large blood-vessels and nervous structures.

[52] Loc. cit.

[53] Zeitschrift für Klinische Medicin, Berlin, 1879, Band i., S. 77.

[54] Riforma Medica Roma, 1892, tome i.

[55] *Loc. cit.*

[56] The immunity first observed by the present writer working with suprarenal extracts has been recently recorded by Ssaweljew (Wratschebnaja Gazetta, No. 19, 1904, abstract in Biochemisches Centralblatt, Band iii., p. 124) in the case of pure adrenalin.

[57] Deutsches Archiv für Klinische Medicin, Band lxxi., p. 146.

[58] See also Zuelzer, Berliner Klinische Wochenschrift, 1901, p. 1209; Metzger: Münchener Medicinische Wochenschrift, 1902, p. 478; Herter and Richards, New York Medical News, 1902, p. 201; Herter and Wakeman, Virchow's Archiv, 1902, Band clxix., p. 479; Paton, Journal of Physiology, 1903, vol. xxix., p. 286.

[59] Journal of Physiology, vol. xxxi., p. 81.

[60] Other papers on the effects of subcutaneous injections are Oliver and Schäfer, Journal of Physiology, 1895, vol. xviii., No. 3, p. 235; Vincent, ibid., vol. xxii., Nos. 1 and 2, 1897, and No. 4, 1898; also Proceedings of the Physiological Society, June 12th, 1897.

[61] Proceedings of the Physiological Society, March, 1894, and March, 1895; Journal of Physiology, 1894 and 1895; ibid., 1895, vol. xviii., No. 3, p. 230.

[62] Schäfer: Text-book of Physiology, vol. i., p. 954.

[63] Oliver and Schäfer, loc. cit. Swale Vincent, Proceedings of the Royal Society, 1897, vol. lxi., p. 66.

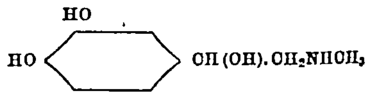
[64] Text-book, p. 954.

D. Mode and seat of action of suprarenal extracts.—It was shown as stated above by Oliver and Schäfer that the effects of suprarenal extract are peripheral and not central.[68] More recent investigations enable us to go a step farther. It has been shown that in mammalia if the vagi have been first paralysed with atropine suprarenal extract produces both augmented systole and acceleration of the heart.[69] Both of these effects of adrenalin may be abolished by the injection of large doses of apocodeine. Thus Dixon[70] found that in a cat half a cubic centimetre of a 1 in 30,000 solution of adrenalin increased the heart rate from 92 to 211 per minute. After the injection of 100 milligrammes of apocodeine the same injection of adrenalin now only increased the rate from 93 to 101 per minute. A futher injection of 200 milligrammes of apocodeine was then administered and caused the rate of the heart to diminish to 87 per minute. Adrenalin even in large doses now produced no acceleration and there was no augmentation of the systole. Dixon, therefore, concludes that the whole effect of suprarenal extract on the heart is a stimulation of the sympathetic nerve endings. This view is supported by the observations of Scott-Macfie[71] who found that extracts of suprarenal capsules and other tissues are without effect upon the embryonic heart, upon leucocytes, and upon cilia. Again, the experimental work of Brodie and Dixon,[72] who find that there are no vaso-motor nerves for the pulmonary arterioles and that adrenalin, when perfused through the pulmonary vessels, produces no constriction, is decidedly in favour of the theory that adrenalin acts upon nerve tissue only.[73]

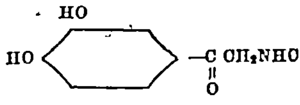
On the other hand, according to Boruttau,[74] the action is direct on somatic muscle, as it occurs in a curarised animal[75] and, according to Lewandowsky,[76] the dilatation of the pupil and other eye effects are produced by a direct action of suprarenal extract on the unstriated muscle. This was inferred from the fact that the extract was still effective after the superior cervical ganglion had been excised and the nerve fibres proceeding from it allowed to degenerate. With regard to somatic muscle, Langley[77] is inclined to accept Lewandowsky's view; while in the matter of plain muscle he put forward the generalisation that the effect of adrenalin is the same as the effect of exciting the sympathetic nerves supplying that particular tissue. Elliott[78] shows that after section of both constrictor and inhibitory nerves going to the plain muscle of the dilator pupillæ and after their degeneration for three days or ten months the plain muscle will respond to adrenalin with greater rapidity and longer persistence than does the iris the nervous relations of which are intact. Therefore, according to this writer, it cannot be that adrenalin excites any structure derived from, and dependent for its persistence on, the peripheral nerves. These different results do not accord very well together but the evidence that adrenalin acts directly on muscle and not on the nerve endings in it seems insufficient.[79] The fact that adrenalin has functionally such an intimate relation to the sympathetic nervous system is particularly interesting when we remember the accepted origin of the chromaffin tissues.[80]

According to some recent observations by Langley[81] in all cells two constituents at least must be distinguished: (1) substance concerned with carrying out the chief functions of the cells, such as contraction, secretion, the formation of special metabolic products; and (2) receptive substances especially liable to change and capable of setting the chief substance in action. According to this author nicotine, curare, atropine, pilocarpine, strychnine, and most other alkaloids, as well as the effective material of internal secretions, produce their effects by combining with the receptive substance and not by an action on axon endings if these are present, nor by a direct action on the chief substance.

E. The chemical nature of physiologically active substances.—Abel separated an alkaloid which he called *epinephrin*,[82] von Fürth isolated another substance which he called *suprarenin*,[83] but the active principle was first obtained in a crystalline form by Takamine[84] and Aldrich[85] independently. The method in both cases was the same. Very concentrated suprarenal extracts were largely freed from inactive substances by treatment with alcohol, lead acetate, &c. Then the active principle was precipitated in the form of microscopic crystals by the addition of concentrated ammonia. The precipitate was next purified by repeatedly dissolving in acid and re-precipitating with ammonia. The needles or rhombic plates so obtained Takamine called *adrenalin*. It is probable that these three names really represent one and the same substance having the empirical formula $C_9H_{13}NO_3$, and the probable structural formula is:—



If adrenalin be oxidised we get a substance having the formula:



Adrenalon

This substance, *adrenalon*, has been prepared synthetically by Friedmann,[86] Stolz,[87] and Dakin.[88] On reduction it ought, of course, to yield adrenalin, but the substances which have been obtained in this way from synthetical adrenalon seem to differ somewhat from the natural product, though they are nearly as active.[89]

F. Theories as to the function of the suprarenal capsules.—It has already been pointed out that the suprarenal capsule consists of two distinct organs, the cortex and the medulla. As the embryology of these two constituent tissues is so totally distinct, it is probable that we ought to search for a separate function for each and we have no right to assume that these functions would necessarily be intimately related each other. All the well-ascertained facts which appear point to a definite physiological significance, apply to chromaffin cells and not the greater part of the dual ly. The two chief theories are (1) the "auto-intoxication ory"; and (2) the theory of "internal secretion." The mer was first clearly stated by Abelous and Langlois[30] o performed a series of extirpation experiments upon gs. These authors found that the blood of animals dying the result of suprarenal extirpation is toxic for other imals which have recently been deprived of their capsules. e symptoms caused by this blood are said to be those of rari poisoning and the conclusion reached by Abelous d Langlois was that after suprarenal extirpation one or veral toxic substances, the products of muscular metalism, accumulate in the organism and that the function of e glands is to remove or destroy these. But, as pointed t by Schäfer,[31] it is probable that the blood of an animal ing slowly as the result of any disease, would be to some fent toxic and the toxic principles would more powerfully fect animals the resisting power of which had been lessened a recent severe operation. Further, the suprarenals produce material which has entirely different properties from those ated to be possessed by animals deprived of their capsules.

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[65] Oliver and Schäfer, loc. cit.

[66] Swale Vincent, loc. cit.

[67] As already referred to above, Biedl and Wiesel have proved this for the Nebenorgane of Zuckerkandl. Cleghorn (American Journal of Physiology, vol. ii., July 1st, 1899) tested the action of extracts of sympathetic ganglia. Instead of obtaining the rise of blood pressure characteristically produced by extracts of suprarenal medulla this author got, on the contrary, a fall. This was shown by Osborne and Vincent (Proceedings of the Physiological Society, Feb. 17th, 1900; Journal of Physiology, vol. xxv., p. 9; also Journal of Physiology, 1900, vol. xxv.) to be the usual physiological action of extracts of nervous tissues in general. In sympathetic ganglia the chromaffin cells are not present in sufficient amount to produce their physiological effect. I have also repeatedly failed to obtain any physiological effect from the injection of extracts of carotid glands, but here again the difficulty is probably in isolating sufficient of the chromaffin tissue.

[68] This applies to the effect on the blood pressure. Some of the general physiological effects seem to be central (vide supra).

[69] Oliver and Schäfer, loc. cit.; Gottlieb, Skandinaviches Archiv für Physiologie, 1898, vol. viii., p. 147; Hedbom, Schmiedeberg's Archiv, Band xxxviii., p. 99; Cleghorn, American Journal of Physiology, 1899, vol. ii., p. 283.

[70] Journal of Physiology, 1904, vol. xxx., p. 125.

[71] Ibid., 1905, vol. xxx., p. 269.

[72] Ibid., vol. xxx.

[73] I.e., upon "nerve endings"—the link between nerve-fibre and muscle-fibre.

[74] Archiv für die Gesammte Physiologie, 1899, Band lxxviii., p. 112

[75] But it does not follow, of course, that because a curarised muscle cannot be excited through its nerves that therefore the *whole* of the nerve ending is paralysed.

[76] Archiv für Anatomie und Physiologie, 1899, p. 360.

[77] Journal of Physiology, 1901-02, vol. xxvii., p. 245.

[78] Ibid., vol. xxxi., p. 20; Proceedings of the Physiological Society, May 21st, 1904.

[79] It may be that the action of adrenalin is different in some respects from that of crude extracts with which, of course, the earlier observers worked. The whole subject requires further investigation.

[80] See Kohn, Kose, &c., loc. cit.

[81] Journal of Physiology, 1905-06, vol. xxxiii., p. 400.

[82] Johns Hopkins Hospital Bulletin, Nos. 90, 91, 1893; American Journal of Physiology, March 1st, 1899; Zeitschrift für Physiologische Chemie, 1899, Band xxviii., p. 318.

[83] Zeitschrift für Physiologische Chemie, Band xxviii., 1897.

[84] American Journal of Pharmacy, 73, November, 1901; Preliminary Communication in Society of Chemical Industry, New York, January, 1901.

[85] American Journal of Physiology, 5, p. 457, August 1st, 1901

[86] Hofmeister's Beiträge, Band vi., p. 92.

[87] Berichte der Deutschen Chemischen Gesellschaft, Band xxxvii., p. 4149.

[88] Journal of Physiology, vol. xxxii., p. 34; Proceedings of the Physiological Society, 1905.

[89] Other recent papers are:—Pauly, Berichte der Deutschen Chemischen Gesellschaft, Band xxxvi., p. 2944; ibid., Band xxxvii., p. 1383; Jowett, Proceedings of the Chemical Society, 1904; Polte, Archiv für Augenheilkunde, Band li.; Abderhalden und Bergell, Berichte der Deutschen Chemischen Gesellschaft, Band xxxvii., p. 2022; also Halle, Hofmeister's Beiträge, Band viii., v. bis vii. Heft, 1906, and Friedmann, ibid., Band viii., iii. und iv. Heft, 1896.

The "internal-secretion" theory is briefly as follows. The uprarenal capsules are continually secreting into the blood an ctive material, adrenalin, which is of benefit to the muscular ontraction and tone of the cardiac and vascular walls and ven of the skeletal muscles. Now the theory of Abelous nd Langlois was stated before the effects of injection of the xtract of suprarenal medulla were known but Abelous[32] has ecently published a paper in which he advocates the view riginally held by the joint authors. Although the theory of nternal secretion is the one which is most generally ccepted and which appears to have the balance of probbility on its side, one is bound to admit that the direct vidence in favour of the secretion of material into the lood stream is very slight. It was stated by Cybulski,[33] and epeated by Langlois[34] and Biedl,[35] that a rise of arterial lood pressure could be obtained by injection of defibriated blood obtained from the capsular vein. Schäfer[36] has een unable to confirm this and quite recently Blum[37] has enied that such results can be obtained.[38] This author, ndeed, strongly opposes the theory of internal secretion, elieving the "Entgiftung" or "auto-intoxication" theory to be the true one.[39] The difficulty is to account for the presence in the suprarenal medulla of a substance having such extraordinary physiological properties as adrenalin. The auto-intoxication theory would necessitate our assuming that this substance is a waste product soon about to be eliminated, while the internal-secretion theory supposes that it is a product of glandular activity manufactured for use in the economy. The time is not ripe for any dogmatic statement as to which is the true theory, nor, indeed, for any very definitely formulated views as to functions of the suprarenal capsules.

(To be continued.)

THE CURE OF CHRONIC SUPPURATION OF THE MIDDLE EAR WITHOUT REMOVAL OF THE DRUM OR OSSICLES OR THE LOSS OF HEARING,

WITH TEN CASES.

BY CHARLES J. HEATH, F.R.C.S. ENG.,

SURGEON TO THE THROAT HOSPITAL, GOLDEN SQUARE, LONDON.

ON Dec. 5th, 1904, I read a paper before the Otological Society of the United Kingdom, which afterwards was published in THE LANCET,[1] on "The Restoration of Hearing after Removal of the Drum and Ossicles by a Modification of the Radical Mastoid Operation for Suppurative Ear Disease" (founded on the experience of 400 operations). Early in that communication occurred the following passage: "The system I adopt, or some slight modification of it, will ultimately be adopted as a means of restoring hearing to large numbers of persons afflicted with suppurative ear disease." The modifications described below and the cases quoted, which have been examined by several otologists, will show that forecast to have had some foundation, for the change in procedure has resulted in the improvement in the hearing power of all the patients (ten) on whom this operation has been performed.

Much time was spent in studying the subject before the measures described below were put into practice. First, a glance was taken at the physiology of the mucous cavities of the ear, and their drainage was found to be dependent on one small channel, no doubt effective in health but not capable of expansion to meet the requirements of disease, and, indeed, liable to be contracted as a result of the very disease which increases the strain upon its capacity. The modifications which were introduced by disease were brought under observation, including the additional drainage of the tympanum resulting from a perforation of the membrane. The changes most commonly found in the condition of the walls and contents of the tympanum were considered as well as the possibility of recovery from these conditions. Next, the characters of the discharge came under observation and their effect on the freedom of drainage through the Eustachian tube, and especially through the aditus, should granulations or other form of obstruction arise in that passage. Observations had previously been made to the effect that the same condition had frequently appeared to be present after suppuration of three months' duration as after three or even 30 years; much instruction was derived from cases which had been seen on the operating table and these also gave hints as to possibilities. Notes had been taken concerning the methods and routes adopted by nature, either alone or assisted by surgery. Memoranda were made on all these and other points, but it is impossible even to allude to them here, much more discuss them in the small space available; therefore these remarks are mainly in abstract form and much that is important has to be excluded.

As the result of a long consideration of this subject one salient feature has always stood out prominently—namely, the importance of the cavity of the antrum—inasmuch as the persistence of the disease appeared to depend on this chamber rather than on the tympanum and therefore it became necessary to regard it as the key of the position. A few remarks concerning it will therefore not be out of place. It seemed to me that if the cavity of the antrum remained unaffected there was a good prospect that the tympanum might not become diseased past recovery and that if it became seriously diseased no treatment of the tympanum through which antral discharges must pass could be relied upon to effect a cure.

The drainage of the antrum, which from its proximity to, and liability to involve, the most vital parts should be called the danger zone of this disease, takes place through a small unyielding bony passage, the aditus, which may be obstructed more or less easily according to its size, which is variable. It does not need to be completely and rigidly obstructed for enlargement of the cavity behind it to take place. A little pressure long continued may expand it in any direction; upwards to the middle fossa less than one-eighth of an inch away, downwards and outwards to the mastoid process, backwards, or backwards and downwards to the lateral sulcus and sinus. Among the cases recorded below are examples of all these conditions. It was observed that erosion through the bone above the antrum into the middle fossa was very common and that erosion from the attic into the middle fossa above was very rare in spite of the fact that the thickness of the bone over the latter cavity was less than over the former. Surely there must needs be something to account for this fact; and it is not unreasonable to attribute it, partly or mainly, to an interference with the drainage through the aditus. Such obstruction may be slight, probably it is not often complete enough to stand pressure sufficient to cause pain, for the antrum is a sinus of but little sensibility, yet it appears to be enough to cause expansion in that direction which is most facilitated by the arrangement of the bone cells in this locality. Further, it is a cavity endowed with just those conditions which are favourable to the propagation of bacteria when they have once found entrance, and these too may bear a share in the course of this disease and should they penetrate the inflammatory protecting zone which is usually present they may travel far and wide without the process being associated with much pain to indicate the danger and thus lead to disastrous results. It is a frequent occurrence during the performance of operations on the mastoid process for chronic suppuration for observation to be made regarding the futility of expecting to cure the disease there and then exposed by any treatment through the meatus. The question may be asked, What prospect is there that the antrum will resume a healthy condition after it has once become infected and therefore the source of discharges which will by their irritating qualities lead to such an alteration in the mucous membrane of the aditus, tympanum, and Eustachian tube, as to prevent those passages allowing of proper drainage? And conversely, what chance has the tympanum of recovering a healthy condition if it has to serve as a drain for the transmission of such irritating productions of the antrum as get forced out through the aditus? It must be allowed that the prospect and the chance are not enough to be relied upon as probabilities. Then what is to be done? "Let us eliminate the antrum, the danger zone." Well, suppose the antrum eliminated and the passage of all irritating discharges from it through the tympanum stopped, what then? Is the condition of the tympanum (the attic is included) such that there is no probability of repair? My experiences lead me to the opinion that in the majority of cases it is not. This opinion is the result of personal observations of hundreds of mastoid operations and therefore of an acquaintance with the great damage to walls and contents of tympanum occasionally seen after scarlet fever and other diseases but which are fortunately not the rule; also of a knowledge of the fact that the radical operation is based on the assumption that the tympanum in chronic suppuration of the middle ear is usually in such a condition that it cannot recover health and function and must be emptied of its contents in order that the suppuration may be cured, an assumption which is surely supported neither by pathology nor clinical experience. Further, the paramount position which the radical operations hold in the estimation of otologists is a tacit acquiescence in the opinion that chronic suppuration of the middle ear is generally considered to be incurable by any other means. The various pathological conditions which may exist in the tympanum in this disease are well known but that they are frequently of a kind that prohibits any probability of recovery is not in harmony with my own observation and experience and it is these alone that have led me to the opinion, firstly, that the tympanum and its contents are not, as a rule, so far diseased as to be beyond repair; and secondly, that the condition of the Eustachian tube has a most important bearing on the result, for unless that passage be in a thoroughly efficient condition, the perforation of the membrane cannot heal nor the tympanum be restored to health. Naturally, therefore, the following conclusions were arrived at: that, given elimination of the antrum with its foul discharges and consequent improvement in the patency of the tympanum and Eustachian tube; given also operative provision of access to the tympanic membrane, for observation and treatment, and to the aditus for the purpose of carrying out the treatment described below, it was considered more than probable that the remaining tympanic disease would offer no great difficulties and that the cavity would therefore resume its health and function. Having come to these conclusions it was determined to put them into practice by instituting an operation combining these essential points and thus to learn if the before-mentioned observations were reliable and deductions well founded.

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[30] Loc. cit.

[31] Text book of Physiology, vol. i., p. 950.

[32] Soc. Biologie, Band lvi., pp. 951-53.

[33] Gaz. lek., Warszawa, and Anz. der Akademie der Wissenschaften in Krakau, 1895; Centralblatt für Physiologie, Leipzig und Wien, 1895, S. 172.

[34] Thèse de Paris, 1897, p. 132.

[35] Archiv für die Gesammte Physiologie, 1897, Band lxvii.

[36] Text book, loc. cit.

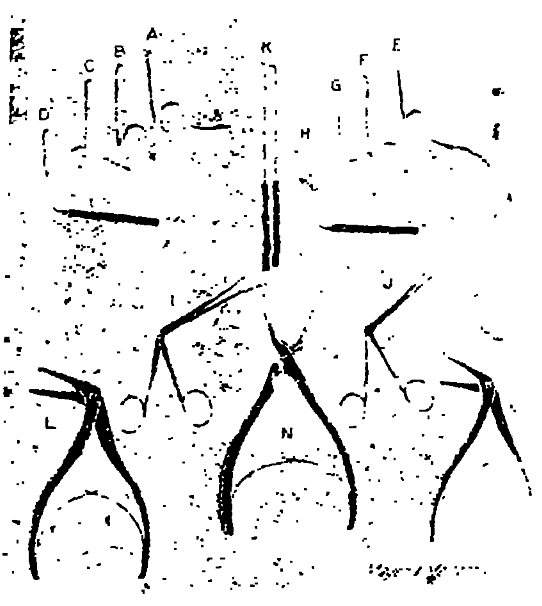
[37] Archiv für die Gesammte Physiologie, 1904, Band cv.

[38] If the medulla of the suprarenal capsule be really continually pouring into the suprarenal vein small quantities of adrenalin it ought to be possible, by collecting large quantities of blood coming from the organ, to get some rise of blood pressure. But the experiment is not an easy one; it must be remembered that in carnivora there is, properly speaking, no capsular vein. The vessel passing from the abdominal wall receives some tributaries from the capsule and unless special precautions are observed blood taken from the large vessel on the front of the capsule consists largely of blood which has not come from the suprarenal at all. Mr. Jolly and myself have performed two experiments in which as large a quantity of blood as possible was collected through the capsule. A saline decoction of this was then injected into a cat but in both cases instead of getting a rise of blood pressure we got a marked fall, as with an extract of any other animal substance.

[39] It may, of course, be that the true view embraces both conceptions, that the organ secretes materials which either in situ or in other regions of the body have an antitoxic action. Kohn (Prager Medicinische Wochenschrift, 1898, Jahrg. 23, No. 17; Archiv für Mikroskopische Anatomie, Band liii., 1898; Anatomischer Anzeiger, Band xv., 1899; Archiv für Mikroskopische Anatomie, Band lvi., 1900) objects to the theory of internal secretion on the part of the suprarenal medulla on morphological and histological grounds. He does not consider the chromaffin tissue to be glandular at all. I have discussed this point in a previous paper (Anatomischer Anzeiger, Band xviii., 1900, S. 71).

[1] THE LANCET, Dec. 24th, 1904, p. 1757.

Operation.—The procedure followed in the operation which has been practised in this investigation is in its opening stages similar to the early stages of the radical operation referred to above[2] but later there are modifications which will be described hereafter. The same cap can be used to obviate the need of shaving the head and most of the same instruments are suitable. The antral probes, however, must not be used to locate the antrum through the tympanum, otherwise the hearing apparatus may be damaged. After the exposure and necessary treatment of the antrum and any communicating cells and cavities (as described in the paper referred to) any granulations found in the aditus must be removed and the orifice shaped to fit the cannula (see illustration). If this passage be unusually long it may be shortened by removing bone at its posterior end and then it should be plugged to prevent the entrance of blood or bony fragments. Next, a tiny wet cotton swab should be placed on the perforation of the tympanic membrane to keep fragments from entering the cavity through that aperture. Most of the posterior part of the bony meatus must now be removed and, if necessary, even portions of the upper and lower walls, according to the size of the meatus, until complete freedom of access to the drum membrane is obtained. Any polypi or protruding granulation should be removed with the special polypus forceps (see illustration) and with these also by pressing the blades against the membrane above and below the perforation the nearest granulations can be made to protrude through the perforation, when they, too, should be caught in the forceps and removed. *These are the granulations which, if allowed to remain, would be likely to become adherent to the edge of the perforation and must therefore be removed or the membrane might afterwards become drawn inwards by contraction of those granulations.* (See Case 9, where a granulation was left in the perforation in order to see what would take place.) In removing bone near the tympanic ring the risk of injury to the facial nerve must not be forgotten. The plugs on the membrane and in the aditus should now be



A, Large cannula for right aditus. B, Medium ditto. C, Small ditto. D, Bent probe ditto. E, Large cannula for left aditus (with air bag attached). F, Medium ditto. G, Small ditto. H, Bent probe ditto. I, Large polypus or granulation forceps. J, Small ditto. K, Long slender bent probes for preventing or breaking adhesions between tympanic granulations and the membrane. L, Long bone forceps. M, Short ditto. N, Avulsion ditto.

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[2] The Lancet, Dec. 24th, 1904, p. 1767.

oved, a cannula with a bag attached (see illustration) d in the aditus, and while the membrane is under close rvation a blast of air should be sent through the attic and panum and the effect on the drum membrane observed. If perforation appears to be too small to allow of egress of contained tympanic secretion it can be enlarged; if in unfavourable situation an entirely new opening can made for the purpose of facilitating the exit of any erial within the tympanum which is capable of expulsion powerful blast *through the aditus*. A *syringe* having n attached to the cannula, the whole tympanic passage uld next be irrigated in the same direction with some nd antiseptic, and this fluid should finally be ex- ed by the air douche and the plugs replaced in the tus and deep meatus. The cartilaginous meatal flap uld be fashioned on the same plan *as that advocated for* radical operation above referred to but should include her more of the superior quadrant in order to allow oughout the entire after treatment of that uninterrupted w of the membrane which will insure the prevention of *untoward complication*, such as an adhesion of the mbrane to a granulation. The wound behind the ear st be completely closed with sutures and all after treatnt carried on through the cartilaginous meatus, which uld be enlarged sufficiently to permit the use of a inage-tube about five-eighths of an inch in diameter, l as less bone is *removed* in this than in the radical ration this tube occupies a more oblique position. A t dressing in this operation is the best and should be con- ued in diminishing sizes as long as an external dressing is *ded.*

fter-treatment.—As the operation will have rendered the ole of the tympanic membrane visible the after-treatment thereby been made interesting, not to say instructive; it l also be found to be of shorter duration and less painful n after the radical operation, for there is generally but le of the slow-healing pars petrosa involved and the sitive tympanic cavity will not be exposed. On day following the operation the dressing and the be are removed, the entire cavity is cleansed and dried, abbed with cocaine solution, and after a short interval ed again. Then the patient is ordered to hold his nose d blow air through the ear by Valsalva's method, while effect on the membrane and perforation is carefully tched. The discharge expelled in this way is removed th tiny mops and the odour and consistency are noted; the nnula is then passed into the aditus and observation again ken of the effect on the membrane and perforation of the ssage of a blast of air from this direction. The material us expelled, which may be more purulent than that blown t by the patient's effort, should be removed, its odour and pearance noted and recorded, and if matters are pro- essing favourably the disagreeable qualities will no longer present.

The condition of the hearing power should next be tested d recorded and it will usually be found to have already proved. Finally, after seeing that the membrane is free om the liability of adhesion to any granulation, a precau- on necessary for several days, the cavity may be swabbed ith iodoform emulsion, the same tube replaced, and a essing applied. After trying several methods the following nclusion has been arrived at—viz., that after the initial eansing patients who have undergone this operation re- ver as quickly without as with fluid douches through the r, and this should not be surprising when it is remembered at air is the natural occupant of the free parts of the mpanum. Certainly no applications should be used which e likely to retard the growth of ciliated epithelium. If e aditus becomes prematurely blocked with granulations e passage of a probe will insure the freedom necessary for e use of the cannula but the probe (see illustration) should t be allowed to pass as far as the attic for fear of injury the attachments of the incus. There is no difficulty in serting the probe or cannula into the aditus without seeing , if the drainage-tube be shaped properly, kept in posi- on, and the soft parts fixed during the operation with the bject of providing this necessary access. Within a day or wo of the operation the discharge will often be seen to ome mainly or entirely from the bone and soft parts and e secretions of the tympanum to have diminished to such n extent that the Eustachian tube is adequate for their emoval.

The meaning of the sounds given out by the perforation hen air is blown through the aditus is soon understood and a day or two after the operation it is usually found that nothing but mucus comes through; the sound during inflation will then probably be moist at the beginning only, for the amount of mucus being necessarily small it gets blown out at the commencement of the inflation. When passing a probe or cannula into the aditus the mucus in the perforation, and even the drum membrane itself, can be seen to bulge outwards. The granulations which at the operation were visible through the perforation shrink and in a few days disappear. May it not be presumed that those in the attic which cannot be seen will do the same? After trying various methods of after-treatment this plan through the enlarged cartilaginous meatus has been adopted as the simplest and most direct in all cases of mastoid disease when the antrum is opened, and if the lateral sinus should be situated far forward this is the only practicable route, and anyone who sees for the first time the ease and accuracy with which the after-treatment can be carried out in this way will wonder how he ever managed satisfactorily through an opening behind the ear, for then, if the meatus should happen to be small, it is impossible either to treat or to see the tympanic condition. As might be expected, the part of the wound in which the healing is most delayed is the bony cavity in the mastoid process, the aditus usually being closed, the perforation healed, and thus the hearing apparatus made safe, some time before the antral cavity has filled and granulated, but though unhealed the discharge given off by the granulations when not irritated by the contact of mucus is so trifling that a piece of wool placed in the concha to cover the tube has been found to be a sufficient dressing.

Nine of the cases, abridged details of which are given below, are numbered in the order in which the operations were performed during the four or five weeks which ended on June 17th, 1906.

CASE 1.—The patient was seven years old; sent up from the country; suppuration three months; cause unknown; no adenoids; a discharging sinus over the *mastoid* process; granulations visible in the tympanum; perforation at the back of the membrane three-sixteenths of an inch in the longest diameter.

At operation: Large cavity in mastoid process continuous with the antrum, filled with granulations and pus; granulations not removed *from* tympanum; cannula used regularly; perforation healed in 14 days. Hearing before operation watch on contact, after operation seven inches, which for this watch is excellent hearing. The patient's hearing is probably improving. She is in the country. A letter dated July 26th, 1906, says that she now hears the watch at 30 inches.

CASE 2.—The age of the patient was eight years Suppuration during whole life; foul discharge for years; polypus in meatus hiding membrane; no adenoids.

At operation: Very large antro-mastoid cavity, filled with granulations; polypus removed from meatus; large *perforation* at the back of the membrane. Granulations removed through perforation which afterwards healed in three weeks. Hearing before operation watch on contact; after operation 12 feet. Hearing equal in both ears. A remarkable result.

CASE 3.—A patient two and a half years old. Suppuration three months. Admitted with swelling behind the ear and a high temperature. Adenoids removed. Swelling and temperature abated after one week in hospital. Discharged but readmitted at the end of another week with displacement of pinna and usual acute mastoid symptoms. Temperature 100·8 F.

At operation: Large antral cavity full of pus and granulations; sinus leading to it through the cortex; perforation at the back of the membrana tympani; granulations seen in the tympanum but not removed. Perforation healed in less than one month; much improved in appearance since operation. Entire drum still visible. Hearing before operation and since, not *satisfactorily* ascertained, but hears whisper well at a distance in both ears, apparently equally, but watch tests are unreliable for both ears on account of extreme youth.

CASE 4.—*The* patient was 29 years of age. Totally deaf in the right ear; *six months'* suppuration in the left ear. *Hearing* steadily getting worse; could only hear a loud shout in the affected ear; labyrinth defective; watch not heard on contact; most of the membrane gone; fœtid discharge; much pain.

At operation: Dura mater of lateral sinus exposed close to the bony meatus, over half an inch forward of the usual position; the small antrum extended beneath the front of the lateral sinus. As to the present condition there is now no external discharge, all mucus being removed by the Eustachian tube; perforation probably too large to have healed so soon after the operation, but has contracted. Hearing before operation required a loud shout in the ear; at present the patient hears a whisper at six feet and conversation anywhere in a room. This patient was so deaf that she lost her employment and though not a favourable case for any operation an attempt was made to improve the hearing, which has succeeded. This perforation is rapidly diminishing in size.

CASE 5.—A patient aged 14 years. Nine years' suppuration after scarlet fever; most of the tense membrane gone. Adenoids removed for ear *symptoms* in April On May 17th pain and tenderness over the mastoid. Admitted to hospital; fomented; improved; discharged. Returned June 7th with tenderness and swelling over the mastoid and high temperature; granulations seen in the perforation.

At operation: Antrum deep and small, the deeper part extending beneath a very forward lateral sinus. The perforation is not yet healed on account of its large size but the drainage goes by the Eustachian tube. Hearing before the operation watch one inch, after operation eight inches; the other ear 24 inches. This perforation is steadily diminishing in size.

CASE 6.—A patient aged 40 years. Totally deaf in the right ear; six months' suppuration in the left ear. Hearing getting steadily worse and now useless. Tiny meatus; nothing to be seen through it; carious bone felt in the tympanum; labyrinth defective; watch not heard on contact. Operation performed solely with a hope of improving the hearing; whole of the mastoid process diseased and removed; membrane observed to be of only about half the usual area. The organ of hearing in this patient is probably congenitally small. Eustachian tube is still usually found to be obstructed but can be cleared with the air bag; this prevents the perforation, which is not large, from healing. Hearing before operation needed a shout close to the ear; after operation the patient could hear conversation anywhere in the room and it was with the hope of this satisfactory improvement that the operation was performed. The disease was not acute.

CASE 7.—The patient was 18 years old. Suppuration ever since infancy. Admitted with unusually acute symptoms; displacement of ear; great pain; hard granulations entirely filling the meatus.

At operation: Enormous cavity in the mastoid process extending to the tip with pus under considerable pressure. The cavity appeared to have previously communicated with the meatus near the membrane and with the tympanum through the aditus; both routes were now blocked which accounted for the compression of the contents of the cavity. The posterior wall and the posterior part of the inner wall of the cavity pulsated freely, indicating extensive exposure of the middle and posterior fossæ of the skull. A temporary gutta-percha tissue drain was used in the lower end of the post-auricular incision for 48 hours in addition to the large drainage tube through the cartilaginous meatus. The perforation was healed in less than one month. Hearing before operation, watch on contact; afterwards seven feet; the other ear five feet. This case shows that after even prolonged suppuration the middle ear may not be in such a damaged condition as to be incapable of complete recovery.

CASE 8.—The patient was 12 years old. Suppuration several years. Admitted with an acute attack; pain, occipital and mastoid; view of the membrane obstructed by granulations.

At operation: Pus found beneath the pericranium; the mastoid disease was continuous from the antrum to the tip of the mastoid process and this space was filled with granulations and pus; the lateral sinus was freely exposed in the abscess. A temporary gutta-percha tissue drain was used in the lower end of the wound in addition to the drainage tube in the meatus. The perforation was healed 12 days after operation. Hearing before the operation, watch one inch; since operation, eight inches and is steadily improving.

CASE 9.—The patient was 49 years of age. Six months' suppuration. Admitted with all the usual acute symptoms; labyrinth involved.

At operation: The cortex was discovered to be undermined before removal. A large cavity was opened extending from the antrum to the tip of the mastoid process with the lateral sinus lying bathed in pus. A polypus in the meatus was removed but a round granulation which appeared to fit into the large perforation at the back was left to see what would result. In three or four days it had adhered to the edge of the perforation and when the patient inflated the ear the air came out through the aditus and not by the perforation; the granulation was then separated from the edge of the perforation with a probe and the patient was again told to blow. The granulation on this occasion entered the perforation, acted as a ball-valve and again obstructed the passage of air; it was left thus and has adhered and blocks this large perforation. Hearing before the operation required a loud shout and the watch was not heard on contact; since the operation half an inch; with the other ear only two and a half inches. In the best ear there is a gouty catarrh and the labyrinth also is not in good order. The patient is a hammerman and the loud ringing of the anvil may have injured the labyrinth, for it is defective on both sides and therefore deafness would surely have resulted if the radical operation had been done, for only if the labyrinthine trouble is of a transient nature is any other result probable.

CASE 10.—The patient was 29 years of age. This case should be added, although the operation was performed in 1902 in a somewhat different way, the posterior bony meatus being removed right down to the perforation, which was situated posteriorly, was crescentic, extended to the tympanic ring, upwards into Shrapnell's membrane, and was a third of an inch long. It looked as though it never would heal, for more than a quarter of the membrane appeared to have been destroyed. There had been six months' suppuration and there was a fœtid rhinitis. The discharge from the ear was very foul; there were abundant granulations and the patient was admitted with acute symptoms.

Now the membrane is intact, there is little but irregularity of the new portion to show the great extent of the disease that previously existed and, further, the patient can hear the watch at a distance of six feet. It was impossible to avoid the conviction that if the grave and extensive disease of the tympanum which this patient exhibited before operation was not incompatible with the complete recovery which followed, then there are grounds for assuming that there can be but few pathological conditions of that cavity which are. This patient's ear on account of the large size of the perforation of the membrane was a long time healing; there was, however, no otorrhœa after the operation while the aperture was closing, for the efficiency of the Eustachian tube was fully restored. It was an encouraging fact that this enormous perforation should heal at all, and that this patient completely recovered from the disease proves that elimination of the antrum was all that was required. She now has an intact hearing apparatus of excellent quality and it is probable that one or more of the only remaining three out of ten patients with, as yet, unhealed perforation will recover. (The two patients in whom the Eustachian tube is clear already show considerable reduction in the size of the tympanic perforation.) This patient (Case 10), who was exhibited at the Otological Society two and a half years ago, has been of much interest and the encouragement derived from her recovery has had much to do with the persistence of this investigation over a period of four years.

The opinion can safely be expressed that all the cases recorded above were in such a condition and had such a history as would, with the experience hitherto available, suggest to the surgeon the necessity of the radical operation, yet the results of the methods which were adopted seem to prove that in the majority, if not in all of them, the radical operation would not have resulted so favourably.

Cases 4 and 6, both delicate women with defective sight, though their tympanic perforations are not yet healed, one because it is so large and the necessary time for extensive healing has not elapsed since the operation and the other because the Eustachian tube is obstructed, are in a far better condition as to hearing and their lives are just as safe as they would be after a radical operation. The labyrinth in each of them is defective and when this is the case half a drum is better than none if the incudo-stapedial connexion is intact, for it keeps the stapes moveable and in proper position, and this will react beneficially on the round window and on the condition of the whole labyrinth.

In Cases 5, 7, and 8 the patients were admitted to the Throat Hospital, Golden-square, on account of acute symptoms, by order of my colleagues Dr. H. Lambert Lack and Mr. Charles A. Parker, who kindly handed them over to my care. My thanks are also due to our house surgeon, Dr. H. F. Shorney, for the care which he displayed in recording the notes of these cases.

The improvement in the hearing of all these patients should not be surprising when it is recognised that no part of the hearing apparatus was removed or injured at the operation and that the source of the discharges which were the cause of the tympanic irritation and deafness was taken away. The list includes all the patients who were operated upon in this manner. They may or may not show better results than are to be expected in the future. A confident opinion may be expressed that they will be improved upon but, such as they are, they are presented for consideration. These ten persons have not only been relieved of the dangers of this disease but this end has been attained without the sacrifice of the hearing of one of them and in the short period that has elapsed since the operation the perforations of the membranes of seven out of ten patients have healed.

Remarks.—What is the procedure described above? It is an adaptation to this part where the anatomical difficulties are so great of those surgical principles which are successful elsewhere. It is also a stage in the process of differentiating the larger number of patients who do not appear to require the radical operation from the smaller number who do. For what surgeon would subject a patient to a radical operation if there were a probability of a better result by any other measure. Unfortunately, hearing of such fine quality as that exhibited by several of the ten patients referred to above has never been observed to follow the radical operation. The practice of new methods usually results in increased knowledge and the proceedings above related are no exception to this rule, for they have resulted in recoveries which point to the necessity of a more searching examination of patients before proceeding to the radical measure, even though that examination may only be completed during the progress of an operation, when the necessary information should be forthcoming to show whether there is or is not a possibility of saving or restoring the hearing and this examination is urgently demanded on behalf of those persons in whom the other ear is in a condition to indicate a possible or probable failure of function, for though the removal of danger in these cases is a surgeon's first duty the preservation of the power of hearing is the second. Far be it for me to suggest that the radical operation will no longer be needed; it will still be of use for those whose hearing has been entirely destroyed or whose disease has not been found amenable to the treatment herein described which by avoiding the removal of any part essential to hearing permits such prospects of retention of the hearing power as the radical operation, associated as it is with its removal of drum and ossicles, cannot possibly afford. Confronted by the facts and experiences recorded in this communication, the otologist will no longer have the excuse of anxiety concerning the safety of the hearing to induce him to delay interference until that hearing may be destroyed, or even the patient's life in danger in consequence of which an operation may have to be immediately undertaken under such conditions that parts must be sacrificed, or have already been destroyed by the disease, which, if the operation had been performed earlier, might have been retained to the patient's great advantage. (Five of the patients referred to above were operated upon under these unfavourable conditions.) Therefore, surely it will be right in dealing with the antrum to do as the general surgeon does with regard to the appendix—that is, to recommend operation as soon as there is proof that the part is diseased and has become an abiding source of danger, r by so doing there can be no doubt that every year a eat many valuable lives will be saved.

The duration of the suppuration, which before the experi- ice gained during the years of this investigation had been nsidered of some moment, though observations of a large imber of radical operations did not support this view, has ot in itself been proved to be of much importance, for of ie three cases mentioned above, with as yet unhealed erforation though improved hearing, two of them were ases of short duration, and the third though of longer anding was the result of great damage wrought by an tack of scarlet fever.

On the other hand, the patients in Cases 2 and 7 with a istory of eight and 18 years' suppuration respectively, ery long periods, are now well, have sound ears, and the est hearing of all (hearing for watch 12 feet and seven feet) nd indicate also that duration of the disease alone does not ecessarily bring about such changes as are incompatible ith complete recovery. The hearing of the two persons Cases 4 and 6) the duration of whose suppuration was of hort standing had steadily got worse, and the watch not eing heard on contact also indicated that the labyrinth ad suffered along with other parts. Now a radical opera- ion on those patients would probably have made their earing worse, for the labyrinth must be in fine order for the earing after the radical operation to be good, and one of hese patients had previously undergone a radical operation n the other ear and the hearing on that side was *nil.* urely these points encourage the opinion that, given the ontinuity of the ossicular chain, half a drum is better for uch persons than none, as they cannot hear by the small enestræ after the radical operation, the *labyrinth is not* ufficiently sensitive, and the impressions conveyed by these mall windows are not sufficient to stimulate a defective abyrinth. In cases where the acute disease has caused reat destruction of bone and the resulting cavity in the nastoid process is large, healing may be hastened by skin rafting on Thiersch's plan through the meatus, for the avity can be thoroughly sterilised and grafting made effec- ive as soon as the leakage of mucus has been arrested by he closure of the perforation and aditus.

The appearance of the thickened and granular tympanic nucous membrane need cause no alarm; it has a protective urpose and is therefore desirable; it is of the nature of an nflammatory zone around an abscess, a strengthening of lefensive works occupied by defensive cells; and are not nflammatory conditions analogous to these, *seen everywhere* n the body where there is suppurative disease and therefore epair required? If this rational view of this disease be taken there need be no surprise at the rapid healing which followed operation in several of the cases quoted above; the tissues were vascular and ready to proceed with repair as soon as the cause of the persistence of disease was removed. As remarked above, it appeared to be reasonable to expect the tympanum to recover as soon as the cause of irritation was removed.

The presence of cerebral or extradural abscess, lateral sinus thrombosis, and the treatment which *these conditions* entail are no bar to the performance of this operation in its essential parts, and the complications which for their adequate treatment demand removal of tympanic contents, such as labyrinthine suppuration, are rarely present, and when they are the hearing will usually be found to have been already destroyed by that disease. Finally, it may be claimed that this plan eliminates disease and danger as effectually as a radical operation without destroying the power of hearing.

The results as far as appearance within the meatus is concerned would naturally be better in the persons who are subjected to operation before extensive destruction of bone has taken place as a result of acute disease; though with regard to the power of hearing there is no appreciable difference this tends to show that the acute disease was entirely behind the tympanum and is in favour of the early contention that the antrum was the key of the position. The hope may again be expressed that the experience gained by a study of these operations may induce other otologists not to allow suppuration in the ears to go on until the hearing is jeopardised nor if urgent symptoms arise—as in so many of the cases recorded above—to recommend the *radical operation*, for thereby hearing may be sacrificed, while from the foregoing it will be seen that an operation is now available which can be expected to improve the hearing in most persons and make it worse in none, and at the same time remove that risk of acute disease, to prevent which the radical operation, in spite of its risk to the hearing, is so frequently performed.

It might have been unwise to draw important conclusions from so small a number as ten operations were it not for the fact that they were so far above average severity that no other series of that number is likely to exhibit less favourable results and for the fact that the preliminary remarks and the whole design of the investigation evinced an expectation of such results

In these concluding remarks not a tithe of the important matters bearing on this subject have been touched upon which have been recorded with a view of discussion, but if enough has been said to induce other otologists to try this method of operation it is improbable that their experiences will materially differ from those given above.

Though the preliminary remarks will have shown that most of these results were foreseen, this investigation has been interesting from the very beginning. When, however, a stage was reached in which the operations were performed new phases developed which required consideration and management and it became quite engrossing. At last there was the satisfaction of knowing that it would certainly result in information which could be relied upon to place the treatment of this terrible disease on a safer and more satisfactory foundation.

The after-treatment of these cases being of such importance, and the information those duties must necessarily convey being of such value, I was constrained to undertake them myself and increased thereby the arduous nature of the task, and it is difficult even now to estimate fully the importance of this question during the short time that has elapsed since the facts were discovered

It is mainly to the unequalled opportunities afforded at the hospital to which I have the honour to belong that this work has so rapidly resulted in definite and valuable conclusions.

ON A FORM OF AMBLYOPIA IN YOUNG CHILDREN CONSEQUENT UPON INHERITED SYPHILIS.

BY SYDNEY STEPHENSON, M.B., C.M. EDIN.,
F.R.C.S. EDIN.,
OPHTHALMIC SURGEON TO THE KENSINGTON GENERAL HOSPITAL, THE
EVELINA HOSPITAL, AND THE NORTH-EASTERN HOSPITAL
FOR CHILDREN.

AMONG the more difficult cases that fall under the notice of the ophthalmic surgeon are those of amblyopia in young children. In addition to the defective history usually forthcoming from parents of the hospital class there are the innate difficulties of ophthalmoscopic examination in children of tender age, who so far from aiding our investigation, do everything they can to impede it. Then there is the uncertainty that must always surround our estimate of the degree of sight possessed by any given baby. In short, the diagnosis of few disorders calls for more patience, knowledge, and skill on the part of the surgeon than that of defective sight in babies.

The most important groups of amaurosis at present recognised in infants are four in number: first, amaurotic family idiocy (Tay and Sachs); secondly, acute cerebral amaurosis of infancy (Gay); thirdly, post-convulsive amaurosis (Ashby and Stephenson); and, last, but not least, post-meningitic amaurosis or amblyopia due to organic changes in the optic papilla and (presumably) in the optic nerve also. In addition to the foregoing, some experience of the eye diseases of children has rendered me familiar with a fifth group of cases where a form of blindness, partial or complete, is directly attributable to the action of the syphilitic virus. The condition is due immediately to opacities in the vitreous humour and remotely to a specific inflammation of the choroid or of the retina or of both those structures. The condition, of course, must be known to many others besides myself. Indeed, "specific hyalitis" has been mentioned by Mr. Jonathan Hutchinson in his memoir "On Certain Diseases of the Eye and Ear Consequent on Inherited Syphilis" (1863), and by Mr. Edward Nettleship in a communication upon Some Forms of Congenital and

Infantile Amblyopia, published in the Royal London Ophthalmic Hospital Reports for the year 1887. At the same time I may be pardoned for publishing reports of some of my own cases since, in my experience, the condition is not an altogether uncommon cause of defective sight in infants and is one that should be diagnosed early in order that specific remedies may be given a fair chance of curing the disorder. Brief details of my cases follow.

Case 1. *Amblyopia in an infant, aged seven months, who died 12 days after she was first seen, presumably from congenital syphilis.*—A. B. came under my care at the Evelina Hospital on July 19th, 1901, on account of defective sight. The mother did not know whether the baby had ever seen well but she was certain that during the last month sight had become worse. A. was the third child, and it was significant to my mind that the second child, now aged 18 months, had suffered in much the same way and was now recovering her sight. Upon examination A. B. was found to "snuffle," to be wasted, and to present a condyloma in the right groin. Her eye rolled about aimlessly and she took not the least notice of a bright object, as a gold watch. The pupils (as in most infants) responded imperfectly to atropine and no view of the details of the fundus could be obtained with the ophthalmoscope. A week later, however, opacities, especially in the anterior part of the vitreous humour, and the optic discs could be dimly recognised. The baby died on July 31st, 1901.

Case 2. *Amblyopia in a syphilitic infant, aged 11 months; considerable improvement under specific treatment.*—C. D. was admitted on March 7th, 1902, with the history that he had never seen well. Although born at term yet he was a small baby. He "snuffled" for several months and did not thrive. He was bottle-fed. The mother had been married 13 years; she had had no miscarriages. On examination I found a tolerably well-nourished baby the bridge of whose nose was markedly sunken ("saddle-bridge"). He followed the flash of the ophthalmoscopic mirror quickly and correctly. The pupils were equal but not responsive to light. The eyes (examined under chloroform) contained vitreous opacities, so numerous as to obscure all deeper details. Under treatment with mercury and chalk, one grain twice a day, the baby showed much improvement. On April 25th he was stated by his mother "to notice everything." His pupils were then responsive to light and the vitreous opacities were less marked. He had put on flesh and become good-tempered.

Case 3. *Amblyopia in a wasted infant, aged three months, associated with ptosis and spasmodic contraction of the muscles of one eye.*—E. F., a wasted "snuffling" baby, aged three months, was taken to hospital on Jan. 26th, 1904, because she was said "to take no notice of anything." She was the sixth member of the family, three members of which had died from "wasting" There was spasmodic ptosis of the left upper lid, with occasional deviation of the left eye downwards and outwards. The eyes were most difficult to examine but the right optic disc—the only one of which a good view could be obtained—was greyish-white and opacities were present in the vitreous humour of each eye.

Case 4. *Amblyopia of fluctuating type in an infant, aged two months, who had suffered from ophthalmia neonatorum; considerable improvement under mercurial tr·atment.*—G. H. was taken to hospital on Jan. 9th, 1906, with the statement that both eyes had become inflamed on the second day after birth and that since then the baby had taken little notice of things about him. On examination there was discharge from the conjunctiva, the condition of which was tolerably good. A small central macula was present on the left cornea. The pupils reacted but slightly to light. The results of the mirror test were inconclusive, the baby now taking notice of the ophthalmoscopic flash and again remaining impervious to the light stimulus. No details of the fundus could be recognised, owing to fine vitreous opacities, lying chiefly in the anterior part of the humour. The baby was treated with mercury and chalk (one grain three times a day) from Jan. 29th to March 24th, and a note made upon the latter date states that the mirror flash was well followed by the baby. The evidence of congenital syphilis in this case was not so conclusive as one could have wished but the child "snuffled" and was wasted. It would be unsafe to lay any great stress upon the craniotabes that was present since there is still a difference of opinion among competent authorities as to the precise significance of that sign.

Case 5. *Dull and fluctuating sight, due to vitreous opacities and choroiditis, in a child, aged two years, who had suffered from symptoms of congenital syphilis; improvement under prolonged treatment by mercury.*—I. K. was taken to hospital on August 22nd, 1905, on account of her sight which was stated always to have been defective. It had been noticed that her sight was worse in the morning than at other times. The eyes had never been inflamed. She was the fifth child in the family and there had been no still-births or miscarriages. When the baby was about three months old she wasted, began to look old, had an eruption on her skin, and presented bleeding ulcerations upon her lips and buttocks. She recovered after about three months' treatment by a medical man. Upon examination the child was found to walk and to talk. Her head was rather small. Her eyes were steady and her pupils were equal and responsive to light. She saw and followed with her eyes the flash of the ophthalmoscopic mirror in the darkened room. The right eye, as tested by the position of corneal reflex, had a slight convergent squint. There were fine vitreous opacities in each eye, concealing to some extent the ophthalmoscopic view of the fundus. But on careful examination with concentrated light faint but extensive choroidal changes could be recognised. Pigmentation, as usual in young children, was not a marked feature of the choroiditis. Under six months' treatment by mercury with chalk (from two to five grains per diem) the vitreous opacities disappeared and the sight became much sharper. The choroiditic changes, moreover, were seemingly brought to a standstill.

Case 6. *Amblyopia in a young child whose father admitted syphilis; nervous symptoms and loss of sight, the latter due to vitreous opacities, disseminated areolar choroiditis, and choroiditic atrophy of the optic disc; partial recovery under mercurial treatment.*—L. M., aged two and a half years, was taken to the Evelina Hospital on Nov. 14th, 1905, with the following history. The child had no definite illness until seven weeks previously, when he complained of pains in the chest, went "off his feed," began to waste, and eventually lost consciousness for a couple of days. Upon recovery it was found that he had lost the use of his left hand and leg, and about a week later that he had lost his sight which had previously been good. The father, who had been married 13 or 14 years, had suffered from syphilis seven or eight years prior to marriage. The first child, a boy, had died at six years from diphtheria; next came a miscarriage, and, lastly, the patient was born. Upon examination the child took no notice of a light and the left eye tended to diverge. The vitreous was cloudy, the optic discs were badly defined, and there were numerous patches of choroiditis in each fundus. Mercury with chalk (from three to five grains per diem) had acted so well that on April 10th, 1906, that is, after about seven months' treatment, the child noticed the mirror flash, although not always readily. The fundi showed slightly pigmented areas of choroiditis; the discs were "on the pale side"; but no vitreous opacities could be recognised.

Remarks.—The condition to which attention is drawn in this paper obviously represents a secondary manifestation of congenital syphilis (syphilis hereditaria præcox). It corresponds with the retinitis, choroiditis, or retino-choroiditis sometimes observed in acquired syphilis from, say, six months to two years after the initial sclerosis, and just as those diseases are often complicated with vitreous opacities so is the affection under notice. In both conditions, congenital and acquired, the eyes may be involved to an unequal degree but it is most unusual for one eye alone to be affected. My point about infantile amblyopia is that in babies "hyalitis" forms the leading ophthalmoscopic feature of the case, while the underlying choroiditic or retinitic lesions may be relatively insignificant or may be altogether hidden by the cloudy vitreous humour.

In my opinion, in babies a cloudy vitreous humour means one thing alone—namely, the existence of congenital syphilis. The diagnosis of the vitreous opacities, however, may be simple or the reverse. Fluctuation in sight, however, is suggestive of their existence. It is seldom, according to my experience, that one sees actual "floaters" with the ophthalmoscope. The condition usually takes the form of tiny dust-like opacities, the ophthalmoscopic effect of which is to veil or actually to conceal the details of the fundus. The latter may be seen for the first time only after the vitreous opacities have been more or less cleared by lapse of time or by the administration of mercurials.

In some cases (Nos 2, 4, 5, and 6) the hazy vitreous clears tolerably quickly under the influence of mercury. The fundus may then show few, if any, changes of a striking nature. This particular sequence appears to me to represent a primary syphilitic retinitis (or possibly a cyclitis), such as may occur in the acquired disease from six to 18 months after the chancre. Of the other cases some are strictly analogous to the much commoner disseminated choroiditis seen from one to three years after the initial sclerosis. In such patients (Case 6) the optic papilla may acquire the dirty yellowish-white hue to which the name of "choroiditic atrophy" has been applied by Sir William Gowers.

It is an interesting and remarkable feature that none of my cases of infantile amblyopia have shown any evidences, past or present, of iritis. Yet that disease was recognised and described by William Lawrence in 1830[1*] in a child, aged 16 months, whose mother was also under treatment for constitutional syphilis. Only one of the baby's eyes was affected and the inflammatory symptoms were mild. Lawrence speaks of a second case associated with wasting and eruptions and terminating in blindness.[2] William Mackenzie spoke of iritis as "not infrequently the consequence of congenital syphilis."[3] Mr. Jonathan Hutchinson, who described a series of 28 cases amongst infants aged from six weeks to 16 months, aracterised this form of iritis as "amongst the rarest of e symptoms of hereditary syphilis."[4] The disease, deed, must be exceedingly rare, for I cannot recall in my n work having recognised a single case. I agree with . George Carpenter who, in his remarkable monograph on Syphilis of Children in Everyday Practice" (1901, p. 83), ates that he has never met with a case, although as a atter of routine he has examined the eyes of hundreds syphilitic infants, and quotes Henoch also as never ving seen a case. The experience of those writers appears be borne out by that of other workers in the field of ildren's diseases.

Welbeck-street, W.

HE AURICULO-VENTRICULAR BUNDLE OF THE HUMAN HEART.

BY ARTHUR KEITH, M.D. ABERD., F.R.C.S. ENG.,
LECTURER ON ANATOMY, LONDON HOSPITAL MEDICAL COLLEGE;
AND
MARTIN W. FLACK, B.A. OXON.,
LONDON HOSPITAL.

IN a letter contributed to THE LANCET[1] one of us described the initial difficulty in finding and displaying the muscular bundle which unites the auricles and ventricles and which is now regarded as the sole pathway for the passage of the auricular wave of contraction to the ventricles. Since that letter was written we have examined over 130 human hearts and although we failed to find the bundle in some of the earlier specimens we are now confident that our failure was due to our ignorance of certain variations which may occur in its position and relationships. We are now convinced that it is an absolutely constant structure and in the properly prepared heart is big enough to be found and dissected out by knife and forceps alone; its finer structure and exact connexions require the preparation of serial microscopic sections. Through the kindness of Mr. Frank Beddard, F.R.S., prosector to the Zoological Society, and of Principal J. Y. Mackay of University College, Dundee, we have had opportunities of examining the hearts of nearly every mammalian order; in all the auriculo-ventricular bundle is present, in all it has the same position, the same connexions and distribution. We have found it in the heart of the young human fœtus in the position and form described by W. His, jun., so long ago as 1893. In seven out of nine malformed human hearts we were able to dissect out the bundle by means of knife and forceps. In a case of heart-block, described by Dr. John Hay,[2] we found that the bundle was partially obliterated at the point at which it perforates the central fibrous body of the heart. In another case of heart-block (Dr. Otto F. F. Grünbaum's) we found the bundle involved within a gumma of the septum.

Much of our pathological material we owe to Dr. J. Mackenzie of Burnley; in two of the hearts sent by him, in which there was an irregularity in the auriculo-ventricular rhythm, we found the connecting muscular bundle largely replaced by fibrous tissue. In short, all the evidence that we have been able to collect from human and comparative anatomy, from embryology, physiology, and pathology, substantiates the theory that the muscular bundle, which perforates the central fibrous body of the heart and connects together its auricular and ventricular parts, is the sole path by which the auricular wave of contraction passes to, and is distributed within, the ventricles. We take this opportunity of clearly stating that although some of our observations are new our work is in the main but a verification of the accurate and complete monograph published recently by Tawara,[3] a Japanese working in the laboratory of Professor Aschoff of Marburg.

The development of our knowledge concerning the auriculo-ventricular bundle (which, for short, may be named the *a. v.* bundle) has been one of intermittent progress. Its history may be said to begin in 1883 when Gaskell[4] proved that the auricular impulse spread to the ventricles by passing over the muscular connexion which exists between these two parts of the heart. Gaskell's work was not regarded as inapplicable to the mammalian heart until 1893; in that year Dr. A. F. Stanley Kent[5] published several papers showing that Gaskell's work may also be applied to the mammalian heart, for in it he found, contrary to all previous observations, that there is a muscular continuity between the auricular and ventricular segments of the heart. The muscular connexion, he said, was of two kinds: 1. By a direct continuity of the auricular and ventricular musculature at certain points; one of the points he specified was at the junction of the interauricular and interventricular septa of the heart; it is this point of muscular continuity which is now spoken of as the auriculo-ventricular bundle of His. 2. He described an intermediate continuity by means of a network of primitive fusiform muscular fibres which are imbedded in the fibrous tissue of the auriculo-ventricular rings of the heart. The second or intermediate muscular union described by Kent we have failed to find in the human heart.

In the same year as Kent applied Gaskell's conclusions to the mammalian heart in England W. His,[6] jun., was attacking the problem in Germany in quite another way. He studied the action of the embryonic heart and found that the auricular impulse passed to the ventricle before nerves had reached or were developed within the heart, and concluded that Gaskell's observation was true—the auricular impulses pass to the ventricle by a muscular connexion. He concluded therefore that it was an error to suppose that the muscular continuity between auricles and ventricles was completely broken during development in the hearts of birds and mammals, and that somewhere a strand of continuity must remain. He found that the muscular continuity disappeared everywhere except at one point—viz., at the junction of the auricular and ventricular septa, the point at which Kent had observed a connexion. Although the work of His, jun., was published some months later than Kent's, yet it must be owned that the German formed the more definite conception of his discovery. In the first place he concluded that the *a. v.* bundle was the sole path for the conduction of the auricular impulse to the ventricle; (2) he put his discovery to the proof of experiment and showed that section of the bundle produced discordance in the contraction of auricle and ventricle; and (3) he looked for and found and described the *a. v.* bundle in the heart of man. We have dealt with this small matter at some length because owing to the question of priority we in this country might feel inclined to replace the name of His by that of Kent.

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[1] A Treatise on the Venereal Diseases of the Eye, p. 306. An earlier writer, Thomas Howson, described a case of mild iritis in a boy, six years of age, who had suffered from infantile syphilis, and who presented "painful enlargements in the centre of both tibiæ." (Observations on the Ophthalmia Accompanying the Secondary Forms of Lues Venerea, 1824, p. 107.) The symptoms yielded entirely to mercurial treatment.

[2] Loc. cit., p. 164, and A Treatise on the Diseases of the Eye, 1844, p. 425.

[3] Practical Treatise on the Diseases of the Eye, 1854, p. 546.

[4] Syphilis, London, 1889, p. 239.

[1*] THE LANCET, March 3rd, 1906, p. 623.

[2] THE LANCET, Jan. 20th, 1906, p. 139.

[3] S. Tawara: Das Reizleitungssystem des Säugetierherzens, pp. 198, 10 plates. (Gustav Fischer, Jena, 1906.)

[4] Gaskell: Journal of Physiology, 1883, vol. iv., p. 43.

[5] Stanley Kent: Ibid., 1893, vol. xiv., p. 43.

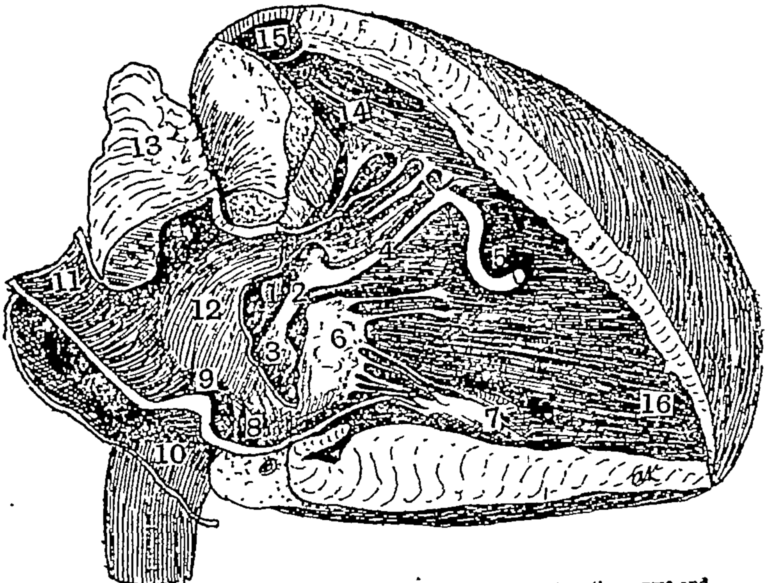
[6] W. His, jun.: Arbeiten aus der Medicinischen Klinik zu Leipzig, 1893.

We believe that neither this bundle nor any other structure in the human body requires a personal name for its proper designation; it is only fair, if we assign the priority to the Englishman, that we should give the credit of the fuller discovery to the German.

Between the work of Gaskell and that of Kent and of His there intervened a resting period of about ten years. Another period of ten years passed before the matter was again actively pursued. Writing about a case of irregularity in the rhythm of auricles and ventricles in 1899 His[7] suggested that the lesion in such cases would be found to affect the *a. v.* bundle. Interest in the matter was undoubtedly stimulated by the exact clinical methods of Mackenzie and Wenckebach and by the experiments of Englemann. In 1904 a number of investigations were made. Retzer[8] and Braeunig[9] again verified its existence and investigated the nature of its composition. Max Humblet,[10] Hering[11] of Prague, and Erlanger[12] of Baltimore (working probably at the suggestion of Osler) set to work experimentally and confirmed the discovery of His—that the *a. v.* bundle was the sole pathway for auricular impulses across the auriculo-ventricular junction; if the bundle was partially cut or slightly compressed the impulse was delayed; if completely cut or tightly compressed the impulse was arrested or blocked, leaving the auricles and ventricles to go on beating independently. But the real advance at this time came by the application of anatomical methods. It is Tawara's merit to have shown that the *a. v* bundle described by His and seen by Kent is only the commencement of a great system which distributes the auricular impulse throughout the substance of the two ventricles. Tawara discovered that the bundle descended on the interventricular septum and was continued by ramifications to all parts of the ventricular walls; the ramifications of this system he found to be made up of Purkinje fibres, the presence of which within the heart had never been explained. In short, Tawara formulated the theory that the Purkinje system of fibres is for the conduction and distribution of the auricular impulse within the ventricles. The musculi papillares especially receive an early and liberal supply from the main divisions of the *a. v.* bundle.

The *a. v.* system of fibres has the same type of arrangement and distribution in the hearts of all mammals, but in none is this system so clearly marked as in the heart of the calf. What is seen obscurely in the human heart can be seen there as in a diagram. In Fig. 1 the right chambers of the calf's heart have been laid open; the drawing is made from a heart prepared by the Kaiserling method, by far the best we know for a naked-eye examination of this system. The cartilage within the central fibrous body of the calf's heart is shown; the endocardium of the septal wall of the right auricle and the underlying muscular fibres have been removed from the area between the cartilage and the orifice of the coronary sinus to expose an outer or superficial layer of muscle fibres belonging to the auricular canal. The fibres as they reach the central cartilage terminate in a plexus of fibres. From this plexus or network of muscular fibres commences the auriculo-ventricular bundle. The muscle fibres of the bundle and of the plexus are pale red in colour—paler, much paler, than the surrounding musculature. The bundle passes along a groove, almost a canal, in the cartilage; the canal is completed by the fibrous tissue to which the base of the septal cusp of the tricuspid valve is attached. On issuing from the central cartilage the bundle at once pierces the interventricular septum, apparently burying itself in the musculature. In the figure the bundle has been exposed by removing the overlying musculature. After a short course (one centimetre) within the upper part of the interventricular septum the *a. v* bundle divides into right and left septal divisions (see Fig. 1). The right septal division passes forwards on the septal wall of the right ventricle, almost superficial in position, until it reaches the point at which the moderator band is attached to the septum. There twigs are given off to the musculature of the septum but the main continuation of the right septal division enters the moderator band. A section across the moderator band shows the Purkinje fibres in three or four bundles; these bundles are isolated from the rest of the musculature of the moderator band by well-developed connective-tissue sheaths. Through the moderator band they reach the anterior group of musculi papillares and lateral wall of the ventricle; from there extensions to the other musculi papillares are very apparent. Beneath the endocardium a fine network of Purkinje fibres can be seen throughout the ventricle.

Fig. 1.



The right auricle and ventricle of a calf's heart exposed to show the course and connexions of the auriculo-ventricular bundle 1. Central cartilage exposed by dissection. 2. The main bundle. 3 Auricular fibres from which the main bundle arises. 4. Right septal division. 5 Moderator band. 6 Septal cusp of the tricuspid; the upper part of this cusp and the adjacent part of the infundibular cusp have been removed. 7. Posterior group of the musculi papillares. 8. Orifice of the coronary sinus. 9 So-called "tubercle of Lower" above the orifice of the inferior vena cava (10). 11. Orifice of the superior vena cava. 12. Septal wall of the right auricle. 13. Appendix of the right auricle. 14. Septal wall of the infundibulum. 15. Beginning of the pulmonary artery. 16. Apex of the right ventricle.

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It was undoubtedly a study of the calf's and of the sheep's heart that led Tawara to formulate the theory that the system of fibres just described was a conducting, not a contracting, system. Its root lies in the annular and septal fibres of the right auricle; the trunk is buried in the interventricular septum; its branches and twigs are distributed to all parts.

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[7] W. His, jun: Wiener Medicinische Blätter, No. 44, 1894; Centralblatt für Physiologie, No. ix., p. 469.

[8] Retzer: Archiv für Anatomie und Physiologie (Anatomische Abtheilung), 1904, p 1.

[9] Braeunig: Ibid (Physiological Supplement), 1904, p. 1.

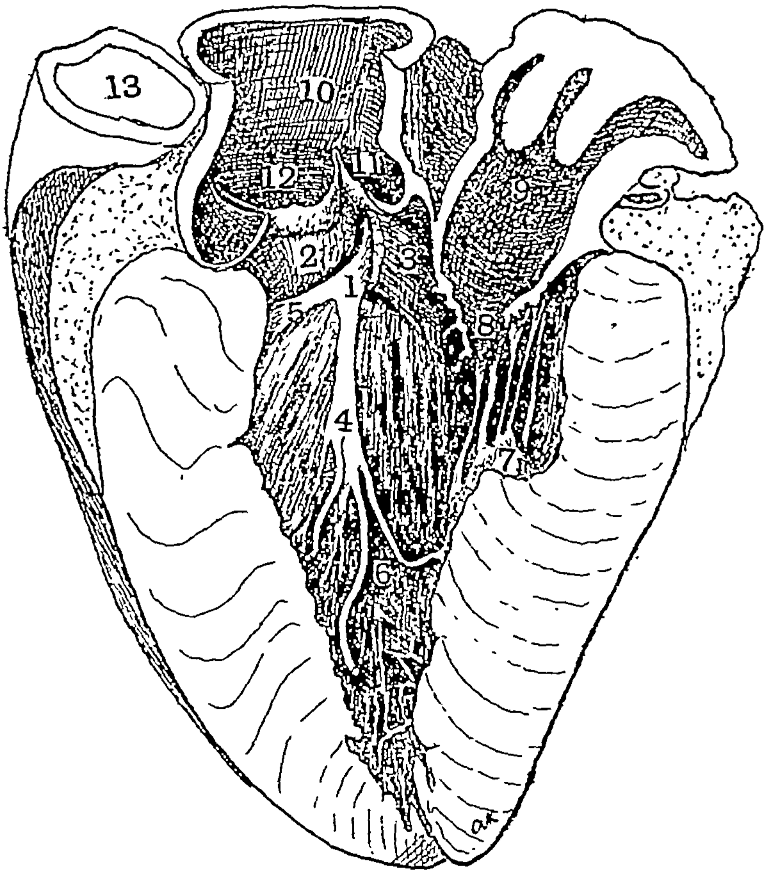
[10] Humblet: Archives Internationales de Physiologie, vol. i., p 278.

[11] Hering: Pflüger's Archiv, vol. cviii., p. 257.

[12] Erlanger: Journal of Experimental Medicine, vol. viii., p. 8.

of the heart; the muscle fibres which make up the ramifications of this system (not the main bundle) are of the peculiar Purkinje type; these fibres, until they reach their terminations and join the ordinary musculature, are isolated by special fibrous sheaths. Further, when these other circumstances are taken into consideration—(1) that the systole of the ventricles is not a peristaltic contraction spreading from auricular to aortic orifices but a coördinated simultaneous contraction of the entire ventricular part of the heart; (2) that physiologists have postulated the presence of a muscular connexion between auricles and ventricles for the transmission of the auricular impulse; and (3) that the Purkinje fibres were until now of unknown significance—when all these circumstances are taken into consideration Tawara's theory commends itself to anatomists and physiologists alike as a satisfactory explanation of the presence and arrangement of the Purkinje system. The early and liberal supply of these fibres to the musculi papillares is a point to be noted. So clearly marked is the conducting system in the heart of the ruminant that one marvels how its presence and its continuity with the *a. v.* bundle have escaped notice until now.

FIG. 2.



The left ventricle of a calf's heart exposed to show the course and distribution of the left septal division of the auriculo-ventricular bundle. 1. Left septal division appearing on the upper part of the septal wall of the left ventricle. 2, 3 The sub-aortic mass of musculature divided to show the passage of the bundle from the right side of the heart. 4, 5. Branches of the left septal division. 6. Free muscular "moderator" bands containing prolongations of the bundle. 7. Septal or mesial group of musculi papillares; this group receives one of the free bundles. 8. Mitral valve. 9 Left auricle. 10. Aorta laid open. 11. Non-coronary cusp of aortic valve. 12. Right coronary cusp. 13. Pulmonary artery.

In the human heart the Purkinje system is not so clearly differentiated as in the sheep's heart but there can be no doubt, as may be seen from Figs 3 and 4, that it is present and exactly identical in its position and arrangement. In the heart shown in Fig. 3 both auricles have been removed and the right ventricle has been laid open by the removal of its lateral wall. Part of the coronary sinus (8, Fig. 3) has been left attached to the base of the left ventricle; some of the annular fibres of the right auricle, from which the *a* bundle begins, have also been left; the main bundle is rep sented, for diagrammatic effect, as a hard narrow white lin it passes forwards within the lower margin of the mer branous part of the septum and on the upper margin of t interventricular septum; the inner or mesial part of the sept cusp of the tricuspid valve has been removed to show tl bundle in this part of its course; traced backwards the bund is seen to perforate the central fibrous body of the hea which in the figure is laid open so as to show the bund joining with the fibres of the right auricle. As the bund is traced forwards in the membranous part of the septum is found to separate, as in the sheep's heart, into a right ar left septal division. The typical condition of the right sept division is shown in Fig. 3. It always passes down tl septum at the same position—viz., at the junction of tl infundibulum and sinus of the rigl ventricle. It is commonly buried the musculature of the septum, ofte in the depth of a furrow of thicken endocardium, and passes directly the anterior group of musculi papillar —the same destination as in tl sheep's heart. In the sheep's hea (Fig. 1) it reached these musculi throug the moderator band. The moderator ban of the human heart is the wide thic septal trabecula, shown at 5 in Fig. only slightly separated from the rest the interventricular septum. This gre trabecula has exactly the relationships the moderator band of the sheep's heart the classical description of a moderat band is applicable to the common typ of mammalian heart, such as th sheep's, but certainly does not hold f the human heart.

Turning to the left side of the huma heart, the left septal branch of the *a.* bundle will be found to be very apparent it is seen descending as a wide sub endocardial fillet on the septal wall o the left ventricle (Fig. 4). The mem branous part of the septum is show beneath the non-coronary and righ coronary valves of the aorta (14, 13 Fig. 4). As the main *a. v.* bundle passe forwards in the lower margin of th membranous space it gives off a con tinual stream of fibres which pass down wards in the sub-endothelial tissue o the septum and form the fillet men tioned above. The thread-like par passing from the septum to the mesial or posterior group of musculi papillares (Figs. 4 and 5) is almost constant. These threads may be two or three in number; they contain extensions of the *a. v.* bundle. The main part of the left septal division separates into two, or sometimes three, branches. The anterior of these branches passes[11] to the anterior or lateral group of musculi papillares; the posterior to the posterior or mesial group. These extensions to the musculi papillares often form free or "moderator" bands, as in the heart of the sheep and ox. Besides the branches to the musculi papillares numerous twigs go to the lateral walls of the left ventricle. In the arrangement and distribution of the *a. v.* system there is to be seen a close resemblance between the heart of man and that of the ox.

So far we have described in a general manner the course and distribution of the *a. v.* bundle, merely touching on its relationships to other parts of the heart in a cursory manner. When we came to examine microscopically the structure of the region of the heart in which the main bundle is situated,

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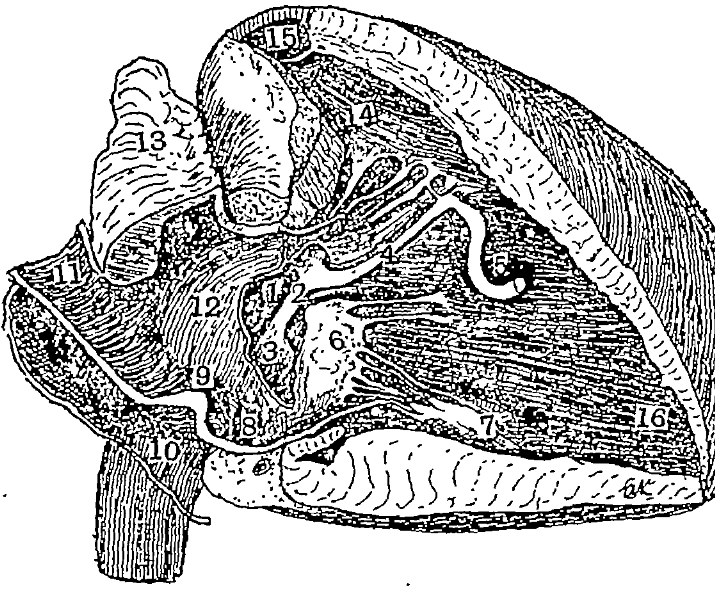
[11] At the present time there is the utmost confusion as to the nomenclature of the cusps of the aortic valve. If the terms right coronary, left coronary (above which the right and left coronary arteries arise), and non-coronary be used this confusion will be avoided.

We believe that neither this bundle nor any other structure in the human body requires a personal name for its proper designation; it is only fair, if we assign the priority to the Englishman, that we should give the credit of the fuller discovery to the German.

Between the work of Gaskell and that of Kent and of His there intervened a resting period of about ten years. Another period of ten years passed before the matter was again actively pursued. Writing about a case of irregularity in the rhythm of auricles and ventricles in 1899 His[7] suggested that the lesion in such cases would be found to affect the *a. v.* bundle. Interest in the matter was undoubtedly stimulated by the exact clinical methods of Mackenzie and Wenckebach and by the experiments of Englemann. In 1904 a number of investigations were made. Retzer[8] and Braeunig[9] again verified its existence and investigated the nature of its composition. Max Humblet,[10] Hering[11] of Prague, and Erlanger[12] of Baltimore (working probably at the suggestion of Osler) set to work experimentally and confirmed the discovery of His—that the *a. v.* bundle was the sole pathway for auricular impulses across the auriculo-ventricular junction; if the bundle was partially cut or slightly compressed the impulse was delayed; if completely cut or tightly compressed the impulse was arrested or blocked, leaving the auricles and ventricles to go on beating independently. But the real advance at this time came by the application of anatomical methods. It is Tawara's merit to have shown that the *a. v* bundle described by His and seen by Kent is only the commencement of a great system which distributes the auricular impulse throughout the substance of the two ventricles. Tawara discovered that the bundle descended on the interventricular septum and was continued by ramifications to all parts of the ventricular walls; the ramifications of this system he found to be made up of Purkinje fibres, the presence of which within the heart had never been explained. In short, Tawara formulated the theory that the Purkinje system of fibres is for the conduction and distribution of the auricular impulse within the ventricles. The musculi papillares especially receive an early and liberal supply from the main divisions of the *a. v.* bundle.

The *a. v.* system of fibres has the same type of arrangement and distribution in the hearts of all mammals, but in none is this system so clearly marked as in the heart of the calf. What is seen obscurely in the human heart can be seen there as in a diagram. In Fig. 1 the right chambers of the calf's heart have been laid open; the drawing is made from a heart prepared by the Kaiserling method, by far the best we know for a naked-eye examination of this system. The cartilage within the central fibrous body of the calf's heart is shown; *the endocardium of the* septal wall of the right auricle and the underlying muscular fibres have been removed from the area between the cartilage and the orifice of the coronary sinus to expose an outer or superficial layer of muscle fibres belonging to the auricular canal. The fibres as they reach the central cartilage terminate in a plexus of fibres. From this plexus or network of muscular fibres commences the auriculo-ventricular bundle. The muscle fibres of the bundle and of the plexus are pale red in colour—paler, much paler, than the surrounding musculature. The bundle passes along a groove, almost a canal, in the cartilage; the canal is completed by the fibrous tissue to which the base of the septal cusp of the *tricuspid* valve is attached. On issuing from the central cartilage the bundle at once pierces the interventricular septum, apparently burying itself in the musculature. In the figure the bundle has been exposed by removing the overlying musculature. After a short course (one centimetre) within the upper part of the interventricular septum the *a. v* bundle divides into right and left septal divisions (see Fig. 1). The right septal division passes forwards on the septal wall of the right ventricle, almost *superficial* in position, until it reaches the point at which the moderator band is attached to the septum. There twigs are given off to the *musculature of the* septum but the main continuation of the right septal division enters the moderator band. A section across the moderator band shows the Purkinje fibres in three or four bundles; these bundles are isolated from the rest of the musculature of the moderator band by well-developed *connective-tissue* sheaths. Through the moderator band they reach the anterior group of musculi papillares and lateral wall of the ventricle; from there extensions to the other *musculi papillares* are very apparent. Beneath the endocardium a fine network of Purkinje fibres can be seen throughout the ventricle.

FIG. 1.



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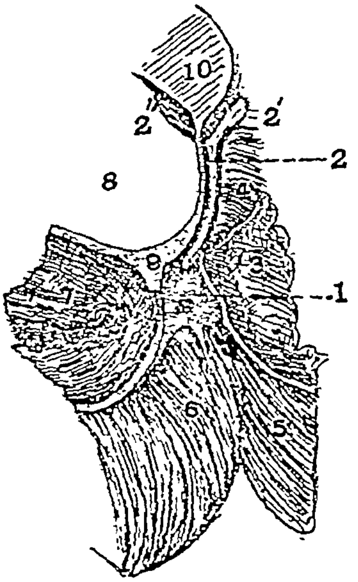
[12] *Erlanger: Journal* of Experimental Medicine, vol. viii., p. 8.

fibrous body, with which the base of the mitral valve is continuous (Fig. 4). Viewed from the right side the membranous space appears rather complicated (see Fig. 3). Its triangular shape may still be recognised; the base is formed by the upper margin of the interventricular septum, the anterior margin by the right coronary cusp (Fig. 3) and the right wall of the infundibulum, the posterior boundary by the non-coronary cusp (Fig. 3, 12), and the central fibrous body. On the right aspect the pars membranacea shows three distinct parts: one in the septal wall of the right auricle (auricular part), another in the right ventricle under the base of the septal cusp (ventricular part), and a third above both auricle and ventricle between the right coronary and non-coronary cusps (intra-cuspidate part) (see Fig. 3, between 13 and 12).

FIG. 5.



Semi-diagrammatic representation of the central fibrous body of the heart to show its intimate connexion with the mitral valve. The auricles are cut away and the adjacent parts of the bases of the ventricle are viewed from above. 1. Central fibrous body opened out; the muscular network from which the auriculo-ventricular bundle arises is cut away; the point of perforation of a constant septal artery is shown. 2. The bundle dividing in front into right (2) and left (2') septal divisions. 3. Base of septal cusp of tricuspid valve. 4. Upper part of the interventricular septum. 5. Base of the right ventricle. 6. Base of the left ventricle. 7. Mitral valve—there is stenosis with endocardial ulceration in the part nearest to the central fibrous body; disease is spreading towards the central fibrous body. 8. Conus arteriosus of the left ventricle from which the aorta arises. 9. Continuation of the central fibrous body into the aorta and interauricular septum. 10. Interventricular septum between the infundibulum of the right ventricle and conus arteriosus of the left. Between 9 and 10 runs the pars membranacea septi, here shown in section; along it runs the main auriculo-ventricular bundle.

In the sheep's heart, and, indeed, in *most mammalian* hearts, there is no pars membranacea; the membranous septum is replaced by a *mass* of musculature which covers over and buries the *a. r.* bundle. Remnants of this subaortic musculature often occur in human hearts; an example is shown in Fig. 4, just covering the left septal division of the *a. r.* bundle under the right coronary cusp. In some human hearts the pars membranacea is partially or completely replaced by muscle which fills up the angle between the aortic cusps usually occupied by the pars membranacea septi. The functional significance of the *subaortic* musculature is unknown to us.

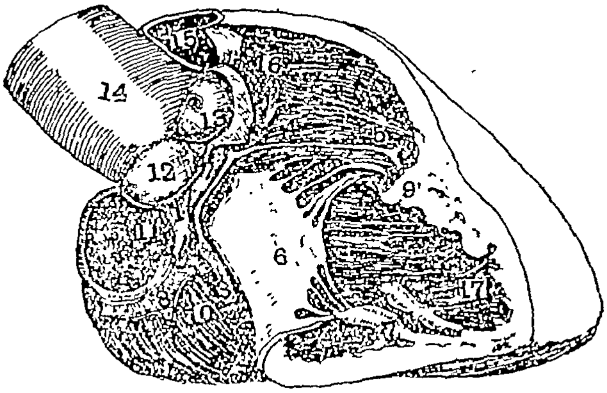
Between the *a. r.* bundle (as shown in Fig. 3) and the cut edge of the septal cusp is shown the upper margin of the interventricular septum; frequently this musculature rises up within the space normally occupied by the pars membranacea. In such cases the *a. r.* bundle is deflected for part of its course to the left side of the septum. We found that the bundle was so deflected in many of the earlier cases which we examined and in which we failed to detect the bundle in the *course of dissection*. The *right septal division* of the *a. r.* bundle leaves the main bundle by turning sharply downwards (Fig. 3); its point of origin may be termed the genu or knee. At the genu the fibres of the *a. r.* bundle appear in part, or even entirely, to terminate in a strong tendinous mass of fibrous tissue situated at the base of the right coronary cusp of the aorta. This mass of fibrous tissue has an important relationship to the *a. r.* bundle and deserves special mention, as it appears in all microscopic preparations made to expose the bundle in this region of the heart. It is much less massive than the central fibrous body but is similar in nature and function. By it the anterior fibres of the interventricular septum are united to the aorta; in systole this tendinous structure has to withstand the tension exercised on it by the heart when forcing the blood within the aorta. The tendinous fibres of this structure unite with those of the central fibrous body along the lower margin of the pars membranacea; on these uniting fibres, as on a floor, the *a. r.* bundle passes forward. In Fig. 3 the right septal division of the *a. r.* bundle is represented as a clearly *differentiated* structure but in nearly half the number of human hearts examined we were unable to follow the right septal band as a clearly differentiated continuation of the main bundle. Even in some of the hearts which were cut and examined microscopically it was only after a close search that we were able to find a strand of musculature which was clearly separated by its structure from the ordinary musculature of the septal wall.

In studying the finer structure of the *a. v.* bundle and of its ramifications in the sheep's heart two of its characters impress one—viz., (1) the character of the muscle cells of this system; and (2) the manner in which they are isolated from the ordinary musculature of the heart by sheaths of connective tissue. The network of auricular musculature in which the bundle commences is made up of peculiarly narrow muscle cells, almost fusiform in shape, united together so as to form a meshwork; the striation is less clearly marked than in the rest of the auricular *fibres*. The main bundle is made up of similar fusiform or narrow elongated fibres while its ramifications are made up of the peculiar Purkinje fibres—so different from the ordinary fibres of the ventricles. The Purkinje fibres are very large; the cells which compose them are pale; with the van Gieson stain they become of a straw yellow colour; only their outer stratum is striated; the great part of their cell body is undifferentiated protoplasm in which the nucleus is contained; wherever a part of this system appears in a microscopic preparation it is at once recognised. It is sometimes said that these Purkinje fibres are embryonic in character—undifferentiated cells. If by embryonic is meant that they resemble the cardiac fibres of the heart of the embryo, then nothing could be further from the truth; if by embryonic is meant the fact that only the *superficial* stratum of the fibres are striated—the interior being undifferentiated cell substance—then in this feature they are embryonic. But in shape and *size they* are not embryonic. They are cardiac fibres which have specialised in a peculiar direction; their fibrillar structure is especially distinct.

When the finer structure of the *a. v.* bundle system is examined in the human heart the peculiar features seen so clearly in the sheep's heart can be recognised but not with the same precision. The isolation of the system by sheaths of fibrous tissue is still *present, especially* in the first stages of the bundle within the ventricles. The structure of the auricular network (situated at, and in, the central fibrous body) from *which* the bundle arises, and the main bundle itself, have the same *structure* as in the sheep but its ramifications are not made up of distinctly marked Purkinje fibres; it is very hard to distinguish the fibres of this system from the ordinary *ventricular* muscle fibres, except by reference to three *features*: (1) they *are smaller* than the usual ventricular muscle fibre; (2) they are isolated by *thick fibrous* sheaths; and (3) they stain less deeply than the ordinary musculature; *nuclei* are more numerous; large multi-nucleated fibres occur. Tawara, on the other hand, reproduces drawings of the fibres of this system of the human heart in which *the characteristic* features of the Purkinje system are clearly recognisable. *Further* and more accurate observations have convinced us that in this Tawara is right; the ramifications are mede up of cells which certainly show the Purkinje *characters*. We found, as Tawara did, that this system does not enlarge with hypertrophy of the heart or diminish in atrophy.

especially when we came to deal with pathological conditions, we found it necessary to obtain a more accurate conception of the arrangement and structure of the central part of the heart than can be obtained at present from published works. We propose now to describe the structure, arrangement, and connexions of the bundle more minutely—especially its relationship to two important parts of the heart—viz., the central fibrous body and the pars membranacea septi.

FIG. 3.

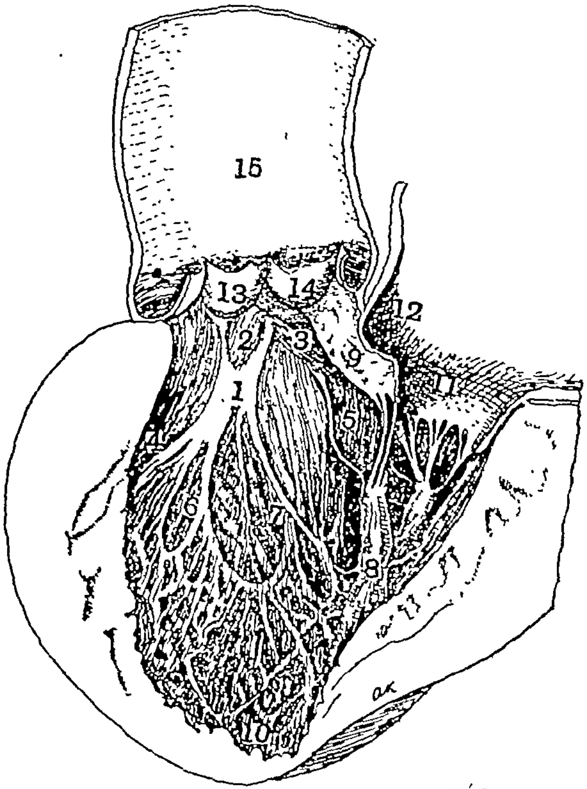


Dissection of a normal human heart to show the course and relationships of the auriculo-ventricular bundle. Both *auricles have been removed and the septal wall of the right* ventricle is exposed. 1. Central fibrous body of the heart, corresponding to the cartilage of *the calf's heart (see Fig. 1).* 2. Placed on the pars membranacea septi above the main bundle and below the attachment of the wall of the *right* auricle to the aorta. 3. Fibres of the right auricle (left *in situ*) from which the bundle takes its origin. 4. Septal wall of the infundibular part of the right ventricle placed above the right septal division of the bundle. 5. *Great trabecula* on the septal wall; part of it represents the moderator band seen in the typical mammalian heart. 6. Septal *cusp of the tricuspid; its upper part has been re*moved; above the cut edge is seen the upper margin of the interventricular septum, along which the main *bundle* runs. 7. Posterior musculi papillares. 8. Part of the coronary sinus left *in situ*. 9. Attachment of anterior group of musculi papillares into which a large part of the bundle passes. 10. Base of left ventricle. 11. Mitral valve. 12. Sinus of Valsalva of non-coronary aortic cusp. 13. Sinus *of* Valsalva of right coronary aortic cusp. 14. Aorta. 15. Beginning *of* pulmonary artery.

The central fibrous body (see Figs. 3 and 5) with which the bundle is so closely related, and in which, we have found, it is most likely to become broken by disease, is a highly complex structure. First and foremost, it is the chief tendon by which the fibres of the left ventricle are yoked to the mouth of the aorta; when the left ventricle is forcing its load within the aorta it is by this structure that the resistance is mainly borne. Both cusps of the mitral valve are continued into it and the musculi papillares, the anterior *group at least, act on it and* through it on the aorta. The musculature of the interauricular septum is implanted on it. It is attached to the aorta at the fundus of the non-coronary cusp. (See *Fig. 3.*) *It* sends off four processes, two to join the right auriculo-ventricular fibrous ring and two to join the same structure on the left side. It is thus a structure continually subjected to strain, especially in cases where the *blood pressure is high from disease of the arteries* or of the valves; our experience so far has been to find that it is in arterial disease that the central fibrous body is most likely to become affected and with its cicatrisation the bundle suffers also. Again, the central fibrous body is continuous on the one hand with the substance of the mitral valve and on the other with the septal and infundibular cusps of the tricuspid; in the heart from which Fig. 5 was drawn there were mitral stenosis and ulceration of the valves at the inner fornix of the valves. By direct spread of the inflammatory process the bundle may become affected in the central fibrous body.

The *a v* bundle has a most direct and intimate relationship to the central fibrous body. Many of the muscular fibres of the interauricular septum end on it but the fibres that most concern us are the annular fibres of the right auricle—circular fibres surrounding the right auricle just above the base of the septal cusp. These become applied to the central fibrous body which some of them perforate. Before perforation and during *perforation* they form a fine meshwork; to expose the meshwork in the central body the attachment of the septal valve of the tricuspid to that body has to be cut through. In Fig. 3 the attachment of the septal cusp to the central body has been cut through. The bundle may be then seen as an easily separated strand—from one to two millimetres wide—but very frequently it is so freely mixed with the tissue of the fibrous body that it cannot be isolated; in microscopic sections this is found to be most frequently the case. In the sheep's heart the plexus or network is very pronounced ("Knotten" Tawara names it) but in the human heart its features are not so characteristic. Yet in the human heart the *a. v.* bundle has distinctly a reticulated arrangement of fibres in and near the central fibrous body and it will be convenient to refer to it as the *a. v.* reticulum. In Fig. 5 the central fibrous body has been opened up, the muscular reticulum removed, and the *a. v.* bundle shown in front of the central fibrous body passing forwards in the pars membranacea septi. The central fibrous body is constantly perforated by a considerable artery derived from the right coronary. The point of perforation of this artery is shown in Fig. 5.

FIG. 4.



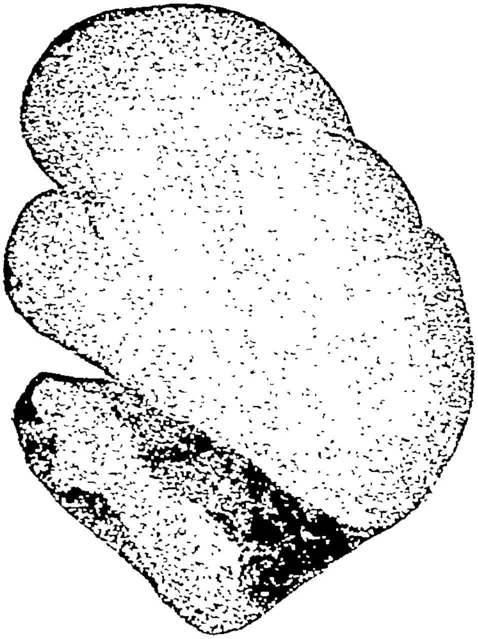
Left ventricle of the normal human *heart laid open to* show the distribution of the left division of the auriculo-ventricular bundle. 1. Bundle descending on the septal wall of the ventricle. 2. Remnant of sub-aortic musculature (see Fig. 2). 3. Constant bundle of musculature which partly covers fibres of the auriculo-ventricular bundle. 4, 5, 6, 7. Branches of the left division of the bundle. The marginal or anterior group of musculi papillares are supplied from 4. 8. The posterior or mesial musculi papillares receive prolongations from 5 and 7. 9. Anterior cusp of the mitral. 10. Apex of the left ventricle. 11. Left auriculo-ventricular orifice. 12. Left auricle. 13. Right coronary cusp of aorta. 14. Non-coronary cusp of aorta. Below 13, 14, and above 2, 3, is seen the pars membranacea septi. 15. Aorta laid open.

The *a. v.* bundle passes along the upper margin of the interventricular septum within the *fibrous tissue of the* pars membranacea septi. This structure (the pars membranacea) is roughly triangular in shape; it is commonly very extensive in hearts which have worked *against a high* arterial pressure. The best conception of its shape and position is obtained by examining it from the left side (*Fig.* 4). The base of the membranous *triangle is formed* by the upper margin *of the* interventricular septum; the posterior margin is bounded by the base of the non-coronary cusp and central starting-point of a useful discussion. I will now give an account of the case.

The patient, a man, aged 27 years, a builder's joiner, was at work on a joist on August 10th, 1904, when the joist broke and he fell through a ceiling on to the floor below, a distance of some 20 feet. He thought that he struck his left side against some projection during his fall, but he was not certain about this, though he was not rendered unconscious by the accident. This happened at 10 A.M., and he was at once taken to the Sheffield Royal Hospital, where he was admitted for a fracture of the left femur; he certainly did not at the time of admission complain of abdominal pain. He was admitted under the nominal care of Mr. R. J. Pye-Smith during his absence on a holiday, and to his kindness I am indebted for permission to publish the case. At 2 P.M. (four hours after the accident) I was called to see the patient as he was complaining of severe abdominal pain. I found him looking pale and anxious and obviously in great pain; his face was drawn and haggard and his breathing was thoracic and jerky. His pulse was 140, his temperature was 100° F., and his respirations were 50. He complained of unbearable pain in the abdomen, "like stomach-ache but more acute"; he felt sick but had not vomited and he was sure that he was going to die. He wanted to pass urine but was unable to do so; his bowels had not acted since admission. His injured leg was not troubling him. On examination the abdomen was rigid, especially in its upper part; it did not move with respiration. The liver dulness was present and there was some dulness in the epigastrium. The abdominal wall was tender on pressure, more so in the upper part. I felt sure that a catastrophe had happened inside the abdomen and that an exploration should be performed at once.

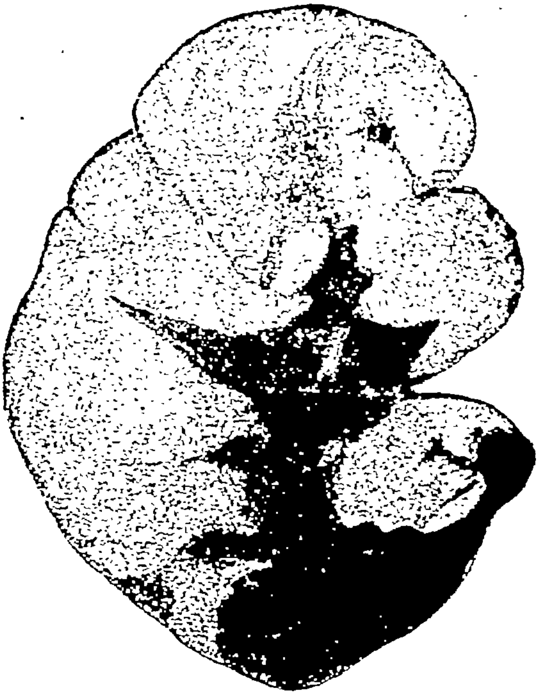
I was inclined to diagnose rupture of the intestine high up. Some delay was caused by my not being able to find any of the honorary staff (I was house surgeon at that time) and as I feared that any further waiting would be fatal, at 3.45 P.M. (five and three-quarter hours after the accident) chloroform was administered and I made a vertical incision just to the left of the umbilicus, with the level of that point as its centre. On opening the abdominal cavity neither gas nor fluid escaped nor were there any signs of commencing peritonitis, but on inserting my hand to explore the upper part of the abdomen, directly the omentum was pressed away from the anterior abdominal wall, there was an alarming rush of dark red blood. This appeared to come from the left lobe of the liver which was then examined but with some difficulty, as the blood flowed with great rapidity and continually flooded the field. As no obvious lesion of the liver was found the spleen was next palpated and I easily made out a large transverse tear, starting from the hilum and nearly separating the lower third of the organ. A long pair of artery forceps was applied to the pedicle which at once controlled the bleeding and made the rest of the operation simple. The incision was prolonged upwards and the spleen was brought round in front of the stomach, so that its anterior and external surface looked backwards and inwards, the pedicle was transfixed and ligatured with stout silk from its posterior aspect, the spleen was excised, and the blood was swabbed out of the abdominal cavity. The wound was sewn up in layers. The patient was not so well by this time, though his condition was by no means desperate; it was thought advisable to infuse three pints of saline fluid into a vein on account of his having lost so much blood. The operation took about three-quarters of an hour; on his leaving the table the patient's pulse was very frequent but quite distinct.

FIG. 1.



Antero-external aspect of spleen, showing laceration of lower pole.

FIG. 2.



Postero-internal aspect of spleen, showing laceration and stripping of capsule. The spleen has been added to the pathological museum of the University of Sheffield.

Next morning (August 11th) the patient had passed a fair night and had slept at intervals; he had vomited once after drinking some hot milk and had complained of some abdominal pain; saline enemata had been ordered every four hours but had not been well retained. His pulse was 110 and of fair tension. One grain of calomel every four hours was successful in causing his bowels to act. A catheter was passed as he was suffering from retention of urine. All went well till the 15th (the fifth day after the operation) when he suddenly began to complain of severe epigastric pain. On examination I found his pulse 120 and his temperature 101°; there was marked pulsation in the epigastrium, no rigidity of the abdominal wall, but great tenderness. I began to fear that my ligature had slipped but decided to wait as I thought the pulsation might be only communicated from the right ventricle. In a short time the patient felt better. After this progress was uneventful with two exceptions. The wound suppurated (I fear that *my aseptic* conscience must have slept during the excitement of stopping the bleeding) and the femur, which was put up in a Hodgen's splint, was found to be still ununited at the end of six weeks. However, it was put up again in the same way for another six weeks, when it united firmly with half an inch of shortening. The patient was discharged on Nov. 6th with the wound healed

From our investigations of the arrangement of the *a. v* bundle system in malformed human hearts, in the heart of the human fœtus, and in amphibian and reptilian hearts we have obtained certain facts which throw some light on its history and nature. Why should the bundle perforate the central fibrous body? The central fibrous body for the greater part is derived from the endocardial cushions of the fœtal heart, especially the posterior one. Now it was on and in the posterior endocardial cushion of the turtle's heart that we found the freest communication between the auricular and ventricular musculatures; in the heart of the turtle we found a considerable bundle of musculature of the right auricular canal ending on the posterior endocardial cushion (posterior valve of the auriculo-ventricular orifice) and freely mixing at its insertion with the origin of the sub-endocardial musculature of the ventricle. If we are right in regarding the central fibrous body of the human heart as a derivative (in part at least) of the posterior endocardial cushion, then it follows that the muscular network found at the commencement of the *a. v* bundle in the central fibrous body is the representative of the interdigitation of the auricular and ventricular musculatures in the reptilian heart.

We found that the *a. v.* bundle is differentiated and relatively massive in the heart of the human embryo of 45 millimetres long (11 weeks). In malformed hearts it was clearly derived from the circular fibres of the canal of the right auricle; it passed into the ventricle behind, and to the right of, the tissue which goes to form the central fibrous body and pars membranacea septi; on reaching the interventricular foramen it spreads out beneath the endocardium on the lower margin of that foramen and descended on both sides of the septum.

Why should the main bundle pass along the upper margin of the interventricular septum? In this position it is resting on that part of the heart which undergoes least change during the systolic changes of the heart. But there is also an embryological reason. The upper margin of the interventricular septum represents the least disturbed part of the interior of the embryonic heart. The evidence is now accumulated which shows that the interventricular septum is not developed by a process of up-growth as His supposed; its development is the result of an opposite process; the ventricles are outgrowths or bulgings of the primitive cardiac tube; the septum is that part of the tube which remains between the outgrowths; hence the upper border of the septum represents the least changed part of the lumen of the embryonic heart and it is there that the *a. v.* bundle is found.

Langendorff[15] has summarised recently the literature bearing on the physiology of this system, so that there is no need for us to deal with this matter. But there is one point which he omits and which we believe throws a side-light on the nature of this system—viz., the functional difference between pale and red musculature as we know it in the voluntary muscular system. The *a. v.* bundle is of the pale type, the ordinary cardiac musculature of the red. Dr. John Hay[16] has demonstrated that the pale voluntary muscles conduct and contract more rapidly than the red.

With regard to the clinical importance of the bundle much has been published recently, especially in connexion with cases of Stokes-Adams disease. From the interpretations placed by Wenckebach and Mackenzie upon tracings obtained in such and similar cases it has been apparent that in most of them there exist irregularities between the auricular and ventricular rhythm. The important question is, What is the cause of such irregularity? W. His, jun.,[17] writing in 1899 upon a case of the disease, opined that a lesion of the auriculo-ventricular bundle might be the cause. Recently both Hering[18] and Erlanger have entered much more fully into the subject. Both believe that a lesion of the fibres of the bundle of His can in itself account for the syndrome of events in Stokes-Adams disease. Erlanger[19] has come to the conclusion as the results of his observations upon a case under the treatment of Professor Osler. A comparison of these results with those of his experiments upon the dog's heart quoted above is exceedingly striking. In the case under observation he observed at different times all degrees of heart block. When the block was complete he found that the ventricles did not respond to influences presumably of vagus origin, whereas the auricles did. Both ventricles and auricles, however, were still under the influence of the accelerator nerves. With partial block the ventricular rate varied within certain limits proportionately to the auricular rate, but if these limits were exceeded the block became complete. Erlanger believes the syncopal attacks of Stokes-Adams disease to be due to the effect of the reduction of the ventricular rate upon the cerebral circulation. He found also that the general blood pressure is lower than normal when the heart block is complete. He considers a certain number of reported cases of the disease and comes to the conclusion that none has been described in which heart block might not have existed; indeed, all cases which have been studied by accurate methods show such to have been undoubtedly the case. Erlanger classes heart block, with and without syncopal attacks, as different phases of the same disease process.

Evidence has recently been forthcoming in support of the conclusion of Hering and Erlanger. Stengel[20] has published the result of a post-mortem examination on a case of Stokes-Adams disease. In the left side of the heart was found an atheromatous patch extending through the endocardium over the bundle of His as it passes from the auricle to the ventricle. M. E Schmoll[21] of San Francisco appears also to have discovered a lesion of the bundle in a necropsy upon a case of this disease. Recent literature also testifies to the general acceptation of this fact in non-fatal cases. Rihl[22] has published an account of five cases which he holds to be due either to partial or complete block as defined by Hering. Lichtheim[23] describes a case which he believes to be due to a lesion of the bundle produced by sclerosis of the coronary arteries. Leuchtweis[24] gives details of a case in which he diagnosed total heart block due to a lesion of the bundle. He found, as did Erlanger, that atropine did not influence the rhythm of the ventricles but caused a slight increase in auricular frequency. Finkelnburg[25] describes a case in which every third beat of the auricles caused the ventricles to contract. He believes this is due to some impairment of the conducting power of the bundle of His. Belski[26] publishes three cases of Stokes-Adams disease, two atypical and one typical. He comes to the conclusion that in each case the explanation lies in the fact that "a Stannius experiment has been performed by nature." Belski makes no reference to the bundle of His but from a careful study of his tracings and from what we now know to be the explanation of Stannius's experiment we can say that in each of these cases a lesion of the bundle of His probably existed. Whether, of course, a lesion of these fibres exists in every case of Stokes-Adams disease is still open to question. His, jun., thinks that in some cases the same phenomena can be produced by lesions of the vagi. In any case sufficient has been written here to show the great importance clinically of the auriculo-ventricular bundle.

A SUCCESSFUL CASE OF SPLENECTOMY FOR RUPTURE OF THE SPLEEN;

WITH REMARKS ON THE DIAGNOSIS AND TREATMENT OF THIS ACCIDENT.[1]

BY GRAHAM S. SIMPSON, F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE SHEFFIELD ROYAL HOSPITAL.

TWO reasons have influenced me in reading this paper before you to-night: the first, that successful operations for traumatic rupture of the spleen are still uncommon; the second, the hope that some remarks that I shall make on the diagnosis and treatment of this accident may form the

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[15] Langendorff: Ergebnisse der Physiologie, 1905, p. 786.

[16] John Hay: Dissertation on Certain Phenomena regarding Red and Pale Muscles. Liverpool, 1901.

[17] W. His, jun.: Deutsches Archiv für Klinische Medicin, Band lxiv., p. 329.

[18] Report of Congress for Internal Medicine, Munich, Semaine Médicale, May 9th, 1906, p. 223.

[19] Erlanger: Loc. cit. Also Journal of Experimental Medicine, vol. vii., p. 676.

[20] Stengel: American Journal of the Medical Sciences, vol. cxxx., p. 1083. Cf. also THE LANCET, Jan. 27th, 1906, p 238.

[21] Cited by Hering, Semaine Médicale, loc. cit.

[22] Rihl: Zeitschrift für Experimentelle Pathologie und Therapeutics, Band ii., p 83

[23] Lichtheim: Deutsches Archiv für Klinische Medicin, Band lxxxv., p. 350.

[24] Leuchtweis: Ibid., Band lxxxvi., p 456.

[25] Finkelnburg: Ibid., Band lxxxvi., p. 462.

[26] Belski: Zeitschrift für Klinische Medicin, Band lvii., p. 529.

[1] A paper read before the Clinical Society of London on Nov. 10th, 1905.

The mortality of the operations for rupture of the spleen that I have collected is as follows: of 70 cases recorded since 1891 42 were operated on; of these 27 lived and 15 died, a mortality of 36 per cent. (all those not operated on died). This mortality is probably much too favourable, as some cases that have been operated on and died may not have found their way into the literature.

The causes of failure after operation are: (1) peritonitis; (2) complications, such as rupture of other solid or hollow abdominal viscera, especially the left kidney; injuries of the left pleura, as hæmothorax; and other injuries, as fracture of the base of the skull; and (3) operation performed too late. Out of 28 cases where it is stated how long after the accident the operation took place three operations were performed within the first two hours. All three died (probably very severe cases). Fourteen operations took place from three to 24 hours after the accident; 11 lived and three died. Six operations were done "the next day"; five lived and one died. Five operations were done from two to eight days after the accident, only one of which lived.

The sequelæ of the operation of splenectomy present a most interesting problem. The majority show no abnormal effect except a transient anæmia and leucocytosis which swings back to normal in about a month, and an enlargement of the lymph glands, most often the left axillary and inguinal; otherwise the patients are healthy. In two cases the patients, though pregnant at the time of operation, have gone on to term. Another patient was successfully operated on for a resulting ventral hernia. A fourth recovered from an attack of typhoid fever after losing his spleen. In five recorded cases (viz., those of Mr. C. Ballance, Mr. Bernard Pitts, Mr. J. Rutherford Morison, Mr. Heaton, and Mr. H. Burrows) a curious set of symptoms supervened on and after the tenth day; these were, progressive emaciation (one case lost 3 stones), attacks of epigastric pain, pyrexia, thirst, rapid pulse and respiration, headache, drowsiness, and irritability of temper. These cases have cleared up on the exhibition of arsenic and sheep's spleens; in one case the patient relapsed when the treatment was discontinued. Mr. Ballance has suggested that these symptoms may be due to the fact that it takes some time for the other organs of the body to take over the functions of the spleen and that it is less likely to occur in children in whom the tissues are said to be less specialised. The latter part of his theory is not supported by the ages of the five cases which I have just referred to; they were 4, 9, 16, 36, and 45 years.

Note on the blood.—Ehrlich, in his work on the blood, quotes Gurloff's experiments on excision of the spleen in guinea-pigs. The latter finds a marked increase of the lymphocytes during the first year after splenectomy, corresponding to the enlargement of the lymph glands, and a moderate eosinophilia after the first year. The blood-counts in my case show eosinophilia in the second year, but the earlier counts were probably vitiated by the occurrence of increase of neutrophiles owing to the suppuration of the wound.[2]

Blood Counts.

August 13th, 1904 (three days after admission).—Red corpuscles, 3,376,000; white corpuscles, 10,000; hæmoglobin, 60 per cent. Differential count.—Neutrophiles, 75 per cent.; small mononuclears, 13·3 per cent.; large mononuclears, 10·6 per cent.; eosinophiles, 0·5 per cent.; and *nucleated* red corpuscles, 0·6 per cent.

August 18th (eight days after admission).—Red corpuscles, 2,592,000; white corpuscles, 16,000; hæmoglobin, 60 per cent. Differential count.—Neutrophiles, 81 per cent.; small mononuclears, 12 per cent.; large mononuclears 5 per cent.; eosinophiles, 1 per cent.; and nucleated red corpuscles, 1 per cent.

August 21st (11 days after admission).—Red corpuscles, 3,480,000; white corpuscles, 44,000; hæmoglobin, 60 per cent. No differential count.

August 28th (18 days after admission).—Red corpuscles, 3,360,000; white corpuscles, 16,000; hæmoglobin, 60 per cent. Differential count.—Neutrophiles, 73·6 per cent.; small mononuclears, 13·6 per cent.; large mononuclears, 11·2 per cent.; and eosinophiles, 0·4 per cent.

Sept. 4th (25 days after admission).—Red corpuscles, 4,200,000; white corpuscles, 8000; hæmoglobin, 75 per cent. No differential count.

Sept. 11th (one month after admission).—Red corpuscles, 4,920,000; white corpuscles, 8000; hæmoglobin, 90 per cent. Differential count.—Neutrophiles, 65·5 per cent.; small mononuclears, 27·5 per cent.; large mononuclears, 5 per cent.; and eosinophiles, 2 per cent.

Sept. 25th (six weeks after admission).—Red corpuscles, 4,912,000; white corpuscles, 12,000; hæmoglobin, 90 per cent. Differential count.—Neutrophiles, 73·5 per cent.; small mononuclears, 23·5 per cent.; large mononuclears, 2·5 per cent.; and eosinophiles, 0·5 per cent.

Oct. 1st (seven weeks after admission).—Red corpuscles, 4,288,000; white corpuscles, 12,000; hæmoglobin, 80 per cent. No differential count.

Oct. 8th (eight weeks after admission).—Red corpuscles, 4,800,000; white corpuscles, 12,000; hæmoglobin, 90 per cent. No differential count.

Sept. 14th, 1905 (13 months after operation).—Red corpuscles, 4,762,000; white corpuscles, 6500. Differential counts.—Neutrophiles, 57·66; and transitionals 1·21; total 58·87 per cent.; large mononuclears, 15·32 per cent.; small mononuclears, 21·14 per cent.; eosinophiles, 3·89 per cent.; basophiles, 0·73 per cent.; and mastzellen and erythroblasts, 0.

May 5th, 1906 (21 months after operation).—Red corpuscles, 4,450,000; white corpuscles, 18,000; hæmoglobin, 80 per cent. Differential count.—Neutrophiles, 59·8; and transitionals, 1·5; total 61·3 per cent.; large mononuclears, 14·8 per cent.; small mononuclears, 19·5 per cent.; mastzellen, 0·4 per cent.; basophiles, 0·6 per cent.; and eosinophiles, 3·1 per cent.

Sheffield.

SOME UNUSUAL FORMS OF ANÆMIA IN CHILDHOOD,

WITH REMARKS ON LYMPHATIC LEUKÆMIA (LYMPHÆMIA).

BY T. R. C. WHIPHAM, M.A., M.D. OXON., M.R.C.P. LOND.,
PHYSICIAN TO OUT-PATIENTS AT THE EVELINA HOSPITAL FOR SICK CHILDREN;
AND
A. N. LEATHEM, M.R.C.S. ENG., L.R.C.P. LOND.,
BACTERIOLOGIST TO CHARING CROSS HOSPITAL; PATHOLOGIST TO THE EVELINA HOSPITAL FOR SICK CHILDREN.

THE subject of anæmia, as it occurs in childhood, is but imperfectly understood, and such diverse opinions are held as to its classification and the existence of different groups that every contribution to the subject recording varieties of anæmia not commonly met with may serve as a link in the chain towards the better understanding of this form of disease. It is for this reason that we publish the cases which form the basis of this paper. The first two tend to support our views as to the existence of an acute lymphæmia without marked leucocytosis, a fact which we consider has not been sufficiently emphasised or fully appreciated by the profession in general. In the consideration of the cases which follows the clinical histories and pathological findings our views will be found in greater detail. The third case is somewhat anomalous; to relegate it to its proper category is a matter of no little difficulty. We must therefore leave the case to speak for itself, though we append a few remarks as to the class to which we consider that it belongs.

CASE 1.[1]—The patient was a girl, aged two years and one month, who attended the Evelina Hospital on August 25th, 1905, with a history that until four days previously she had been quite well but since then she had been crying and fretful, "off her food," and constipated. In addition, she had scarcely been able to walk owing to the inguinal lymphatic glands, which were noticed to be enlarged and seemed painful; there had been no feverishness or vomiting. The patient had had bronchitis as a baby and measles one year ago. The father was healthy; the mother was "delicate." There were three healthy sisters in the family—two older and one younger. Three brothers and sisters had died in infancy from bronchitis or pneumonia. When first seen on August 25th the child was somewhat thin, fretful, and of a sallow complexion, but not anæmic. The but some separation of the fibres of the left rectus at the site of the scar.

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[2] See Ehrlich's Histology of the Blood. Translated by Myers of Cambridge, 1900.

[1] This case was shown at the meeting of the Society for the Study of Disease in Children on Oct. 20th, 1905.

During the three months of his stay in hospital his blood was frequently examined and differential counts were made; it showed the usual changes—viz., a diminution of the red corpuscles which, however, rose to normal in a month and a leucocytosis up to 44,000 which fell to normal in three weeks. The unusual amount of leucocytosis I explain by the occurrence of suppuration. No enlargement of his lymphatic glands was noticed during the first three months but since then his left axillary and inguinal glands have several times enlarged sufficiently to be easily palpated and have again subsided. At no time has he complained of pains in his bones nor has there been any particular pain on percussing them. Nor has he shown that curious group of symptoms, described by Mr. C. A. Ballance and Mr. Bernard Pitts (to which I shall again refer), though no prophylactic treatment was adopted, such as the exhibition of arsenic, sheep's spleens, &c. With the exception of the first fortnight after operation his pulse-rate has always been normal. The only after-consequences that he shows are, first, a ventral hernia and, second, a loss of nerve which prevents him from following his former occupation of builder's joiner, an occupation which involves much climbing about roofs. He has, however, taken up the work of an insurance agent and tells me that he is doing well. My thanks are due to Dr. R. J. Bethune who assisted me at the operation, did most of the blood counts, and also gave me some valuable advice.

Remarks.—From various English sources I have collected 100 cases of rupture of the spleen. Most of the cases recorded before 1891, however, are so scantily reported as to be of little value. In the following remarks I have chiefly relied on 70 cases recorded since 1891. From the point of view of diagnosis sex and age are not of much importance; as in severe accidents generally, males are more often injured than females; in these cases four-fifths of the number were males. The age distribution is most impartial: the oldest patient was 65 years of age and the youngest was in the act of being born. This last was a case of precipitate labour in which the mother was standing at the time and the child fell to the floor. The following is the age distribution (arranged in decades):—

Years.	Number of cases.	Years.	Number of cases.
1 to 10	11	41 to 50	6
11 „ 20	18	51 „ 60	11
21 „ 30	15	Over 60	2
31 „ 40	15		

I would suggest the careful consideration of three points in making a diagnosis of ruptured spleen.

1. *The history of the accident.*—The commonest cause is a sharp blow or kick on the abdomen or side. Under this heading must be included most of the cases of falling from a height, as it will usually be found that the side was struck during the fall. This accounts for 44 per cent. Next in order of frequency is a crush or squeeze, such as cases of run-over and buffer accidents. This accounts for 32 per cent. 12 per cent. are described as due to a sudden movement or strain. These are usually grouped as spontaneous ruptures and are nearly always found to be cases of large, soft, malarial spleens. One, however, was congested from a twisted pedicle. The remaining 12 per cent. are unclassified.

2. The second point in the diagnosis is the signs of internal hæmorrhage. Shock is present in the majority of cases, either at once or within a few hours. Pallor, thirst, restlessness, and retention of urine are usually stated to have been present when they are mentioned in the reports.

3. *The localising signs.*—Abdominal pain and tenderness are very constant; they are usually most marked in the region of the spleen and I have found four cases only where these signs are stated to have been absent. Rigidity of the abdominal wall, in some cases limited to the upper half of the left rectus, is a most valuable sign when present but I was surprised to find that out of 19 cases where this physical sign is mentioned in six it was stated to have been entirely absent and in another case the abdominal wall was described as slightly rigid. This initial rigidity of the abdominal wall is succeeded in from six to 24 hours by distension of the abdomen. The demonstration of dulness in the flanks is the sign which will most surely lead one to a correct diagnosis; if, as described by Mr. Ballance, on changing the position of the patient, the dulness of the right loin disappears but not that of the left a diagnosis of rupture of the spleen or the left kidney can be safely made. I feel sure that if my attention had been drawn to Mr. Ballance's paper before I had seen my case I should have been able to diagnose it correctly. Diminution of the liver dulness has been noted in a few cases and can be explained by the distension of the abdomen or by a concomitant rupture of the stomach or small intestine. No external marks of injury are present in most cases.

From the point of view of treatment I propose to divide the cases into four groups: 1. The patient dies at once or within a few minutes of the accident. These cases hardly come within the range of surgery and I can find no cases of successful operation within the first hour. 2. The opposite extreme: the symptoms are greatly delayed. I have found instances of delay from 24 hours to 15 days; this can be accounted for by the temporary arrest of the bleeding by clotting or, in some cases, by the hæmorrhage being at first subcapsular and later bursting through the capsule. 3. The majority of cases; here the initial shock of the accident, when present, is recovered from and symptoms of hæmorrhage only show themselves after a period of from one to 24 hours. 4. A very few cases where the symptoms of rupture of the spleen have been present and have gradually passed off without operation.

Which of these groups of cases require operative measures? After careful consideration my answer is, "All." In the first group the only chance is immediate laparotomy, though I fear there is not much hope of saving the patient. The cases in the second group—viz., those of delayed bleeding—are in great danger. The clot may become displaced or the capsule may rupture from distension; and in some of them, at any rate, the secondary bleeding is very severe. I think it may be laid down as a sound surgical rule that if, after showing the signs of an intra-abdominal hæmorrhage, a patient recovers but on examination the spleen is found enlarged, an exploratory laparotomy is strongly indicated. I do not think any surgeon will dispute that the cases in the third group should be explored. The last group where the patient recovers after showing the signs of a ruptured spleen (but without obvious enlargement of the organ) I propose to include as suitable for operation for the following reason: that in two cases the effused blood has become auto-infected; in one case leading to a subdiaphragmatic abscess and a fatal result and in the other to signs of sapræmia which necessitated opening and washing out the abdominal cavity.

One question that I should very much like to hear discussed is, May one operate simply on the strength of the history of the accident? I am sure that two fatal cases of rupture of the intestine that I have seen would have recovered if that had been done; the objections to such a proceeding are sufficiently obvious.

As to the operation, a vertical incision through the rectus muscle is probably the best to start with; one is not always certain about the diagnosis and if there are no adhesions and the spleen is not enlarged everything can be done through this incision. If, on the contrary, there are adhesions between the spleen and the diaphragm the operation becomes at once one of the most hazardous in the range of surgery; in that case a transverse incision below the left costal margin will be necessary.

Of the methods employed to stop the bleeding ligature of the pedicle alone has been performed in one case where it was found impossible to excise the spleen. Suture has not, as a rule, been found satisfactory, though a successful case has recently been published. The splenic substance is so friable that this method is likely to be employed only in tears limited to the capsule. With regard to gauze-packing and tampons these are not always trustworthy and are likely to cause extensive adhesions which may lead to subsequent obstruction. This method will, I think, be the best for cases where, owing to adhesions between the spleen and the diaphragm, excision of the former is too risky a proceeding. Excision of the spleen will usually have to be performed: first, because the injury is often so severe; the organ has in many cases been found torn into two or more pieces and portions have been washed out of the pelvis; and secondly, because of the frequency with which the vessels of the pedicle are involved in the injury. Moreover, clamping the pedicle at once controls the hæmorrhage.

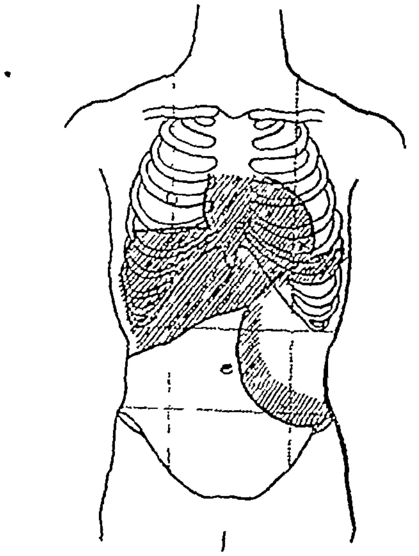
104° and the pulse was from 160 to 180. A bed was consequently again obtained for her in the hospital and she was put on iron, strychnine, and arsenic and brandy. The next day bleeding occurred from the lips and gums but no ocular hæmorrhages could be seen. A blood count showed a diminution of the red corpuscles to 1,870 000, while the leucocytes were 5600. The temperature varied between 102° and 104° and the child was very sick. On the following day (Nov. 12th) she rapidly sank and died.

The various estimations of the blood are given in Tables I. and I A.

Post mortem examination.—The body was fairly well nourished. Rigor mortis was well marked. Hypostasis was slight. There were small purpuric spots, fading slightly, on the body, face, and limbs. There were large, firm, discrete glands in the cervical, axillary, inguinal, and femoral regions. The lungs were very œdematous and presented several large areas of collapse There were a few sub-pleural hæmorrhages which were recent and not extensive. The right pleural cavity was normal but the left contained a small quantity of clear fluid and there were a few recent adhesions at the base of the left lung. The bronchial and mediastinal glands were greatly enlarged and of a red colour. There was a little bronchitis. The heart muscle was pale but not flabby; the valves were normal. There were large pale clots in both sides of the heart. Under the epicardium there were a few small hæmorrhages. The spleen was only slightly enlarged; it was soft and of a dark-red colour. The liver was pale and slightly enlarged but otherwise normal in appearance. The stomach and intestines presented no abnormal appearances. There was no obvious change in the lymphoid tissue of the intestine. The mesenteric glands were considerably enlarged, moderately firm, and reddish in colour; some were hæmorrhagic. The retro peritoneal glands were large and of a deep red colour. The bone-marrow of the ribs was pale and thicker than normal.

Microscopical sections. — Lymph glands: The lymph follicles were distinct. The lymphocytes were mostly small. The lymph sinuses appeared dilated but were nearly empty. There were a slight increase of connective tissue and slight proliferation of the endothelial cells. The large cells described by Andrewes which occur in lymphadenomatous glands could not be seen. Spleen: The Malpighian bodies were mostly ill-defined and in many of them the centre was occupied by a small, granular, structureless mass. The pulp was very crowded with red blood cells but the vessels were not distended. The lymphoid cells were mostly small. The connective tissue was increased slightly and there was a little thickening of the capsule. Liver: Microscopical sections showed very small deposits of lymphoid cells almost entirely confined to the portal canals. Films of the bone-marrow of a rib showed an enormous increase in number of the non-granular cells, the majority of them being considerably larger than a red blood corpuscle. Myelocytes and eosinophiles were present, but in very small numbers. Comparatively few red blood cells were to be seen and of them hardly any were nucleated.

CASE 2.—While the last case was still under observation a small girl, aged four years and eight months, was brought to the hospital on Nov. 3rd, 1905, on account of general pallor of three weeks' duration. Prior to that she had seemed quite well and strong and had had a good colour. Two weeks before a rash had appeared and this had become much more plentiful during the preceding few days. The appetite had been good and the child did not seem ill at first but latterly had had slight coryza and headache. She had been sick occasionally, the vomit being streaked with blood. The patient had had measles when two and a half years of age and diphtheria six months before the onset of the present symptoms. There was a history of rheumatism on both sides of the family and of the death of three brothers and sisters from bronchitis in infancy; three brothers and sisters, two of whom were older, were living and in good health. When first seen the child was irritable and very pale, the mucous membranes being blanched. The whole of the trunk and extremities were covered with discrete purpuric spots of small size; a few were apparently in the deeper tissues but for the most part they were in the skin. One was present on the anterior surface of the lower gum. The cervical, axillary, and inguinal glands on both sides were enlarged, shotty, and moveable, but not tender. In the chest there were signs of general bronchitis and of considerable dilatation of the heart. The apex beat was in the fifth space half an inch external to the nipple line and the cardiac dulness extended to the third left interspace and to just beyond the sternum on the right; a systolic murmur was audible in the pulmonary area and to a less extent at the apex but it was not conducted into the axilla. The abdomen was full, the spleen being much enlarged and soft but not tender and extending from the eighth rib in the mid-axillary line to three inches above the centre of Poupart's ligament. The liver also was big, being soft, smooth, and painless on palpation. The upper limit was the fifth rib in the right nipple line, while the lower edge could be distinctly felt four inches below the ensiform cartilage. The blood was watery and pale and showed very little tendency to coagulation. The red cells numbered 2,196,000 and the white 20 000 to the cubic millimetre; the hæmoglobin was 42 per cent. Of the leucocytes only 0·8 per cent. were polymorphonuclear, while the lymphocytes totalled 98·4 per cent., 72·6 per cent. being of the large variety. Through the kindness of Dr. F. Willcocks the patient was admitted into the hospital two days later when an examination of the eyes revealed a large, fairly recent, hæmorrhage with a central decolourised area to the outer side of the left optic disc. In the right eye there was a marked myopic crescent on the inner side of the disc but no hæmorrhage in the fundus could be seen. The pupils were dilated but there was no external abnormality in either eye. For the first few days the child was drowsy and fretful and vomited occasionally, the ejecta being streaked with blood. The bronchitis became more marked and on the 9th the patient became very restless and obviously worse. Frequent retching and occasional vomiting persisted. The temperature, which was only slightly raised on admission, now fluctuated between 100° and 102° F. accompanied by rapid pulse and respiration. On the 10th she was weaker and somewhat delirious and slight hæmorrhage occurred from the gums. She died early in the morning of Nov 11th. (See Tables II. and IIA.)



Necropsy.—A post-mortem examination was made about 15 hours after death. Rigor mortis was well marked; there was only very slight hypostasis The body was extensively marked with a purpuric rash, somewhat faded and brownish. The rash was present also on the limbs and face. The superficial lymphatic glands generally were enlarged; they were moderately firm and were not matted together. The lungs showed many hæmorrhages of various sizes, both sub-pleural and into the lung substance. The left apex was the seat of an extensive hæmorrhage. The majority of the hæmorrhages were recent but some were apparently older, the clots being decolourised and firm. There were some slight pleural adhesions. The bronchial glands were enlarged, of firm consistence, but succulent. Many of the glands contained hæmorrhages of varying extent. The thymus appeared normal but was rather large for a child of this age, weighing 12 grammes. The tonsils were large and both contained hæmorrhages. The heart was large; there was no valvular cervical, axillary, and inguinal glands were moderately enlarged on both sides, the last named being slightly tender. No enlargement of the spleen, liver, or thymus could be made out, and no extraneous cause for the glandular enlargement could be found. During the next ten days no change occurred in the physical signs but the temperature varied between 98° and 101·8° F. On Sept. 8th the inguinal glands were larger and fresh ones had appeared in both femoral regions and in the left axilla. The spleen was felt just below the ribs and the liver edge extended to nearly half way between the costal margin and the umbilicus. All the glands seemed more or less tender and those in the groin prevented the child walking. The general condition was worse and there had been some diarrhœa. The blood showed 4,736 000 red cells and 25,000 white to the cubic millimetre, with 84 per cent. of hæmoglobin. Of the white corpuscles only 2·4 per cent. were polymorphonuclear, while the lymphocytes amounted to 96·4 per cent., of which 65·9 per cent. were of the large variety. A few normoblasts were seen. A fresh gland subsequently appeared on the chest wall in the left axilla and as the inguinal and cervical glands further increased in size the patient was admitted into the hospital on Sept. 15th and the treatment with arsenic continued. The temperature kept under 100° but rose after a week with the onset of some bronchitis, the pulse-rate all along averaging from 110 to 120. On Sept. 26th an attack of herpes zoster of some severity occurred on the left side of the chest and the temperature shot up from normal to nearly 105°, dropping to normal again, however, the next day. The glandular and visceral enlargements continued unchanged and the child's general condition remained for a time the same, so she was allowed to go home at the expressed wish of her parents. On Oct. 20th an outbreak of small purpuric spots occurred over the trunk and legs and 11 days later there was left otorrhœa. On Nov. 10th the general condition was much worse and the anæmia, which had been gradually increasing, was now marked. A loud hæmic bruit was heard over the cardiac area and some bronchitic sounds were present in the lungs. The glands and abdominal viscera were unchanged but the purpura was fading. The temperature was

TABLE I.—GIVING DETAILS OF BLOOD EXAMINATION IN CASE 1.

Date.	Red cells per c.mm.	White cells per c.mm.	Hæmoglobin per cent.	Polymorphonuclears per cent.	Small lymphocytes per cent.	Large lymphocytes per cent.	Large mononuclears per cent.	Transitionals per cent.	Eosinophiles per cent.	Myelocytes per cent.	Basophiles per cent.	Nucleated red cells per 100 leucocytes.	Remarks.
1905. Sept. 6th ...	4,736,000	25,000	84·0	2·4	30·5	65·9	—	1·2	—	—	—	0·6	Normoblasts. Colour index = 0·88.
Sept. 16th ...	3,920,000	9,400	70·0	8·0	51·4	32·4	5·3	1·6	0·3	1·0	—	0·6	Colour index = 0·89.
Sept. 25th ...	—	17,400	—	2·0	14·0	80·0	3·2	0·4	—	0·4	-	0·8	—
Oct. 5th ...	—	8,300	—	10·7	9·0	63·6	15·1	0·8	0·4	0·4	-	7·6	Well marked polychromasia of red cells.
Oct. 13th ...	3,000,000	22,800	58·0	15·1	19·4	53·3	10·0	0·6	0·6	1·0	—	—	Well-marked polychromasia of red cells. Colour index = 0·96.
Nov. 11th ...	1,870,000	5,600	28·0	—	—	—	—	—	—	—	—	-	Colour index = 0·74.

TABLE IA.—GIVING THE ACTUAL NUMBER OF CELLS PER CUBIC MILLIMETRE IN CASE 1.

Date.	White cells.	Polymorphonuclears.	Small lymphocytes.	Large lymphocytes.	Large mononuclears.	Transitionals	Eosinophiles.	Myelocytes.	Nucleated red cells.
1905. Sept. 6th	25,000	600	7625	16,475	—	300	—	—	150
Sept. 16th	9,400	752	4831·6	3,045·6	493·2	150·4	28·2	94	38·4
Sept. 25th	17,400	348	2436	13,920	556·8	69·6	—	69·6	139·2
Oct. 5th	8,300	888·1	747	5,278·8	1253·3	66·4	33·2	33·2	630·8
Oct. 13th	22,800	3442·8	4423·2	12,152·4	2280	136·8	136·8	228	—

TABLE II.—GIVING DETAILS OF BLOOD EXAMINATION IN CASE 2.

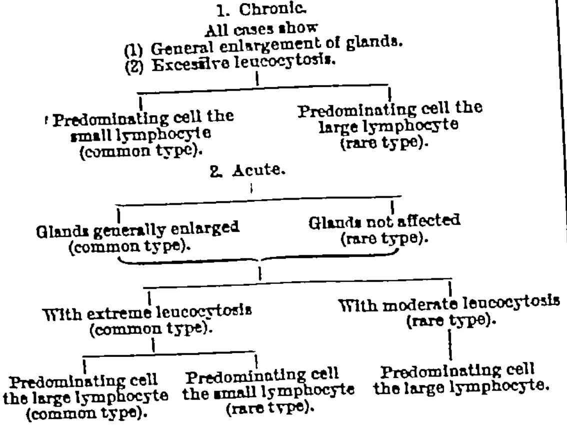
Date.	Red cells per c.mm.	White cells per c.mm.	Hæmoglobin per cent.	Polymorphonuclears per cent.	Small lymphocytes per cent.	Large lymphocytes per cent.	Large mononuclears per cent.	Transitionals per cent.	Eosinophiles per cent.	Myelocytes per cent.	Basophiles per cent.	Nucleated red cells per 100 leucocytes.	Remarks.
1905. Nov. 3rd ...	2,196,000	20,000	42·0	0·8	25·8	72·6	—	0·4	0·2	—	0·2	—	Colour index = 0·95.
Nov. 6th ...	2,140,000	17,000	40·0	4·5	15·5	72·0	6·5	0·5	—	1	—	0·5	Colour index = 0·93.

TABLE IIA.—SHOWING THE ACTUAL NUMBER OF CELLS PER CUBIC MILLIMETRE IN CASE 2

Date.	White cells.	Polymorphonuclears.	Small lymphocytes.	Large lymphocytes.	Large mononuclear.	Transitionals.	Eosinophiles	Myelocytes.	Basophiles.	Nucleated red cells.
1905. Nov. 3rd	20,000	160	5160	14,520	—	80	40	—	40	—
Nov. 6th	17,000	765	2635	12,240	1105	85	—	170	—	85

companied by extensive increase in size of the lymphatic
nds or by the absence of glandular enlargement. The
nmonest type of acute lymphæmia is that in which there
a general enlargement of the glands associated with an
treme leucocytosis, the predominating cell being the large
mphocyte. In some cases with a high grade leucocytosis,
wever, the small lymphocyte is in excess and this may be
sociated or not with general glandular enlargement. On
e other hand, in those cases in which there is a com-
aratively slight leucocytosis the predominating cell is, as
r as we know, always the large lymphocyte.

The varieties of lymphæmia may be conveniently expressed
n a tabular form thus:—


1. Chronic.
All cases show
(1) General enlargement of glands.
(2) Excessive leucocytosis.
Predominating cell the small lymphocyte (common type).
Predominating cell the large lymphocyte (rare type).
2. Acute.
Glands generally enlarged (common type).
Glands not affected (rare type).
With extreme leucocytosis (common type).
With moderate leucocytosis (rare type).
Predominating cell the large lymphocyte (common type).
Predominating cell the small lymphocyte (rare type).
Predominating cell the large lymphocyte.

A point which we consider of great pathological importance in cases of acute lymphæmia is the fact that there may be a marked general enlargement of the lymph glands or there may be little or no such enlargement. Moreover, the cases in which there is no increase in size of the lymph glands may show an enormous increase in the number of lymphocytes, generally of the large variety but occasionally of the small, while those cases, such as the two we now report, in which a well-marked and extensive glandular enlargement is present may show only a comparatively mild leucocytosis, the diagnosis in such cases depending largely on the high percentage of lymphocytes and being confirmed post mortem by the condition of the marrow and perhaps also by changes in the viscera. Normally, the lymphocytes are derived from three sources: the spleen, the lymphoid tissue throughout the body, and the marrow. In lymphocythæmia these three sources of origin may all be involved or one only, that one, which appears most important and the only one indeed the involvement of which seems absolutely necessary in the production of the disease, being the bone marrow. Ewing[11] has found that the distribution of the lesion in the marrow in cases of lymphæmia is very irregular and in the early stage appears to be focal rather than diffuse. In one acute case he found the marrow of the ribs and femur to be normal, while that of the bodies of the vertebræ showed the usual lymphoid hyperplasia. We think it highly probable that the condition of the blood bears a much more direct relation to the extent and degree of the marrow change than to the hyperplasia of the lymphoid structures. Another point in favour of this view is the fact that in chronic lymphæmia the cellular hyperplasia of the glands is found to be largely replaced by an increase of connective tissue, such change not being accompanied by any decrease in the number of lymphocytes in the blood.

The great lymphocytosis in the cases here reported was out of all proportion to that found in childhood and in the secondary anæmias common thereto. It will be remembered that at birth the mononuclear elements constitute from 50 to 75 per cent. of the total leucocytes and that at the third year the mononuclears and the polymorphonuclears are present in about equal numbers; from the eighth to tenth years and onwards the proportions assume the adult type The blood changes in these cases were also more marked than those found in lymphadenoma, for in this disease there is frequently but little change from the normal. In the later stages it is true there may be anæmia and a relative lymphocytosis but the red cells do not as a rule fall below 3,000,000 nor does the lymphocytosis reach 50 per cent. It has been stated that occasionally the leucocytes and the characters of the blood in lymphadenoma become those of a lymphatic leukæmia, though Ewing maintains that "the statement that pseudo-leukæmia may pass into leukæmia rests upon rather uncertain observations." With this we agree and we incline to the belief that those cases in which such a change is said to have occurred were in reality instances of lymphæmia from the beginning, it not having been fully realised that lymphæmia may occur without any marked increase in the number of white corpuscles.

Anæmia infantum pseudo-leukæmica (von Jaksch), a disease which must not be confounded with lymphadenoma, or Hodgkin's disease, on account of the similarity of the name with pseudo leukæmia, a synonym of the latter, likewise differs from the cases which we now record. In von Jaksch's anæmia the spleen is much enlarged and the liver moderately so, while the lymph glands do not show an increase in size comparable to that in leukæmia. The red cells are much diminished and show variations in size and shape and the deficiency in hæmoglobin common to other anæmias, but characteristic features are an excessive number of nucleated red cells and in the graver stages the presence of megaloblasts. The leucocytes number from 20,000 to 50,000 or more, the mononuclear cells forming a slight majority, while the eosinophiles may be increased up to 6 per cent.

Such diseases as scurvy and purpura hæmorrhagica can be passed over. Clinically the cases did not resemble these affections and the blood showed greater changes than are found in them. In purpura hæmorrhagica the red corpuscles are as a rule only slightly, if at all, diminished and scarcely ever fall below two and a half millions unless there is very severe hæmorrhage, while the leucocytes generally show a distinct increase, the polymorphonuclear variety greatly predominating.[12] In scurvy likewise the blood changes are those of a secondary anæmia and present no definite characteristics.

CASE 3.—A girl, aged six years, first attended the out-patient department in June, 1903, with a history of having recently become pale and being very liable to vomiting, though since an attack of measles two years previously, which was immediately followed by severe diarrhœa, she had been getting thinner and weaker and had been very excitable. She had always been a "delicate" child and attended the hospital for wasting when seven weeks old and subsequently for rickets till the age of 18 months. For the next one and a half years her health was good but at the end of that time she had an attack of pneumonia; this was followed about a year later by the measles above referred to which confined her to bed for four weeks. In the family there were three younger children, two of whom had attended for wasting but all were then well except the youngest but one who suffered with a chronic cough. The mother was anæmic but otherwise healthy and the father enjoyed good health. There was no history of any disease in the family. When first seen the child was of small physique and delicate-looking, though by no means ill nourished and showed a slight grade of anæmia. The abdomen was "large and podgy" but no visceral abnormality was discovered either there or in the chest. The bowels were constipated. She was put on a course of cod-liver oil and malt but the former had to be omitted as it induced vomiting. In December, 1903, a slight attack of bronchitis supervened. The abdomen was still large but the child's colour was good and she was said to be getting thinner. Her weight at that time was 31 pounds 2 ounces and during the next two months she was proved to lose a few ounces. During the spring of 1904 she had some return of the cough but shortly after ceased to attend until September. Her general condition had then considerably deteriorated. She was markedly anæmic and thinner than before, having gained only 4 pounds in weight during the previous eight months. A loud hæmic bruit was audible all over the cardiac area; neither the abdominal viscera nor the lymphatic structures were enlarged. The patient complained of pain in the eyes at night and occasional headache. Mr. Sydney Stephenson was accordingly asked to examine her and he reported: "Refraction = 1·25 D. of hypermetropia; fundus normal. The pallor of the fundi and of the blood in the retinal arteries and veins recalls that of some cases of leukæmia I have disease but the heart muscle was flabby and pale. There were many small hæmorrhages to be seen under the epicardium, under the endocardium, and also into the heart muscle. The pericardium contained a slight excess of fluid which was clear but stained with hæmoglobin. The stomach was normal in appearance. In the small intestine there were numerous punctiform submucous hæmorrhages, but neither Peyer's patches nor the solitary glands were enlarged or unduly prominent. Of the mesenteric glands some were normal in size, but many were enlarged, soft, and juicy, and pinkish in colour, while many showed more or less extensive hæmorrhages. The *retro-peritoneal* glands were large, soft, and of a deep pink colour. The liver weighed 26 ounces and was pale; on section no lymphoid deposits were visible to the naked eye. The spleen was considerably enlarged, weighing ten ounces; it was friable and of a dark red colour; there were no infarcts. The pancreas, kidneys, and suprarenal capsules were normal in appearance. The bone-marrow from a rib was pale pinkish in colour and thick.

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[11] Ewing: Clinical Pathology of the Blood, second edition, p. 235.

[12] Ewing (Clinical Pathology of the Blood) describes a non infectious idiopathic purpura hæmorrhagica which is probably identical with hæmophilia. In this condition the lymphocytes may rise to 90 per cent. (Engel), 80 per cent. (Ehrlich)

Microscopic Sections.—The lymph glands showed great hyperplasia of the lymphoid elements; the outlines of the lymphatic follicles could not be clearly recognised, the normal structure of the gland being obliterated by the diffuse lymphoid proliferation. The cells were chiefly large lymphocytes. Many of the lymph sinuses were packed with lymphocytes, but some were empty. There were no increase of connective tissue and no proliferation of the endothelium. Spleen: The Malpighian bodies were few, small, and indistinct. The pulp contained large numbers of large lymphocytes and red blood cells. The vessels were not distended. The connective tissue was slightly increased, but the capsule was not thickened. Liver: There were numerous collections of lymphoid cells, some circumscribed, some diffuse. The deposits were not limited to the portal canals and connective tissue round the interlobular veins, but occurred anywhere in or round the lobules. There were many small areas of degeneration of the liver cells. Kidneys: Microscopic sections showed fairly numerous small diffuse infiltrations with lymphoid cells. These deposits were chiefly round the larger vessels and about Bowman's capsules.

Films made from the bone marrow of a rib consisted chiefly of mononuclear non-granular cells with a very small amount of protoplasm surrounding the nucleus. These cells were of two sizes, one of about the same size as a red blood corpuscle, the other nearly twice the size, the larger cells being much more numerous than the smaller. There were a few cells with large nuclei, either oval or spherical, and a considerable amount of slightly basophilic, non-granular protoplasm. Granular cells were extremely scarce. Red blood cells were not numerous and nucleated red cells were rare.

These two cases, as so often happens with rarities or abnormalities, occurred almost simultaneously in hospital practice and, as a matter of fact, died within one day of each other, though one was of 12 weeks' duration and the other of only four. As will have been seen, the course of each of the two cases was in many ways identical, while the estimations of the blood and the differential counts of the leucocytes showed a great similarity. Both patients were small girls and in each case there was a history of sudden onset of the illness, although the initial symptoms showed a slight disparity, general malaise and glandular enlargement being noticed in the first case and the outbreak of a purpuric rash without constitutional disturbance in the second. The glandular swellings in the latter, though not previously noticed by the mother, were very evident when the patient was first seen, so that, even if they had not existed from the first, at any rate they occurred at an early stage of the disease. It is to be noted that the onset of purpura in the first case was prodromal to a rapidly fatal termination, only 16 days elapsing between its occurrence and death, while the second, in which, as already stated, the purpura was present from the beginning, was of only one month's duration. In the latter case the marked cardiac dilatation was a prominent feature.

The blood in both instances showed a remarkable diminution in the number of polymorphonuclear cells, with a corresponding increase in the mononuclear elements, which at one time amounted to 97·2 and 98·4 per cent. of the total leucocytes in the two cases respectively. Of these the majority consisted of large lymphocytes; in only one count during the earlier stages of Case 1 did the small variety seem to preponderate, while towards the end of Case 1 and throughout the course of Case 2 the excess of the larger form was very marked. Of the other leucocytes, a few eosinophiles and myelocytes were found in both, and an occasional basophile in the second. This lymphocytic excess, it will be observed, occurred without any great increase in the total number of white cells, the leucocytosis in neither instance at any time exceeding 25,000 per cubic millimetre. The red cells in both cases showed a decided decrease towards the end with the presence of a small number of normoblasts, and degenerative changes were exemplified, in Case 1 at all events, by polychromatophilia. The colour indices throughout were only slightly below 1.

Clinically the signs were consistent with a diagnosis of acute lymphatic leukæmia, early involvement of the lymphatic glands generally, enlargement of the spleen and liver, a progressive anæmia and cachexia, and a tendency to hæmorrhages (very marked in Case 2) followed by an early death, while the markedly increased proportion of lymphocytes in the blood, in spite of the fact that at no time was the leucocytosis of any unusual extent, further completes the picture.

Cases of acute lymphatic leukæmia without marked leucocytic increase have been described, such as that by Cabot,[2] in which the leucocytes fell as the result of sepsis from 40,000 to 471 on the day of death; that by F. Taylor[3] of a boy, aged ten years, whose white cells numbered 15,000 when first seen, but with an increasing lymphocytosis amounted subsequently to 50,000; one by Gilbert and Weil,[4] in which all the leucocytes were lymphocytes and the total numbers varied between 22,010 and 46,400; and two by McCrae,[5] one of a boy, aged three years, who at the first count had 26,000 leucocytes, of which 86·5 per cent. were lymphocytes (45 large and 41·5 small) and subsequently 60,800 with 99·2 per cent. of lymphocytes, the small variety amounting to 96·6 per cent.; the other of a man, aged 20 years, whose leucocyte count was 12,000, the percentage of the total lymphocytes being 94·2 and that of the small kind 93·3. Furthermore, Hutchison[6] states that "it must be admitted that cases of true lymphatic leukæmia do occur in which, at one stage of the process at least, there is no *absolute* increase of the total leucocytes, but in such cases there is notwithstanding a marked absolute increase of lymphocytes, whilst the normal total count is due to a great reduction of the polynuclear forms."

A consideration of the disease from a general standpoint leads to the conclusion that lymphatic leukæmia, or more correctly speaking lymphæmia or lymphocythæmia, is a condition presenting itself in many different forms. The differences met with in these cases are so various that at first it appears that one would be almost justified in asserting that every case is atypical. In spite, however, of the diverse appearances shown by this disease we can divide it into two distinct classes—namely, acute and chronic—and furthermore we can subdivide these two into several types with which are associated certain more or less definite characteristics. In the *chronic* cases, which are decidedly less common than the acute, we have two constant features: (1) there is always a general glandular enlargement; and (2) there is always an extreme leucocytosis—i.e., one approaching 100,000 per cubic millimetre and frequently exceeding that number. The majority of the white cells are lymphocytes (from 85 to 99 per cent) and in these chronic cases the small lymphocytes generally, but not always, predominate. Thus, in a chronic case observed by one of us recently there were 138,000 white cells per cubic millimetre, of which 91·2 per cent. were large lymphocytes and 1·8 per cent. were small.

In the *acute* cases, on the other hand, there may be a general enlargement of the lymph glands or there may not. Cases without glandular enlargement have been described by Reed,[7] Houston,[8] Donovan,[9] Dudgeon,[10] and others. Secondly, the leucocytosis may be extreme or of only a very moderate extent, the total number of white cells not exceeding that frequently seen in an inflammatory leucocytosis. And in the third place, such leucocytosis, whether of a marked or of a moderate grade, may be both sides of the heart there were small quantities of pale watery blood; there were no clots. The heart muscle was pale and flabby, with well-marked tabby-cat striation on the musculi papillares. The right ventricle was moderately dilated. The valves were normal. The mucous membrane of the stomach was coated with tenacious mucus but otherwise the stomach wall appeared normal. The small intestine contained a considerable amount of rather thick bile-stained mucus. The mucous membrane was reddened, especially the edges of the valvulæ conniventes. In the large intestine the mucous membrane was reddened in patches The opening of the appendix into the cæcum was plugged with a small mass of inspissated fæcal matter. The wall of the appendix was in a state of catarrhal inflammation, the proximal half of the appendix being distended with very foul-smelling mucus. The mesenteric glands were slightly enlarged and red. The liver weighed 26 ounces and was very pale in colour. The gall-bladder was distended with dark-coloured bile. The spleen weighed five ounces and was of firm consistence. The kidneys were large, each weighing three and a half ounces; the cortices were not enlarged and the capsules stripped easily. The connective tissue throughout the body was decidedly œdematous. The blood was pale and watery and its coagulability was considerably diminished. Films were made from the bone marrow of a rib. The cells showed a considerable amount of degeneration, many of them staining badly and being difficult to identify. The proportion of non-granular to granular cells appeared to be normal. Nucleated red cells were fairly, but not excessively, numerous, the majority of them being megaloblasts. Of the non-nucleated red cells many were macrocytes. Corpuscle-carrying cells were not present.

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[2] Cabot: Clinical Examination of the Blood.

[3] F. Taylor: Transactions of the Clinical Society, 1904, p. 46.

[4] Diseases of the Blood, Nothnagel's Encyclopædia, p. 555.

[5] Brit. Med. Jour, 1905, vol. i., p. 404.

[6] Goulstonian Lectures, 1904

[7] American Journal of the Medical Sciences, 1902, p. 653.

[8] Meeting of British Medical Association, Oxford, 1904

[9] Brit. Med. Jour, February, 1905.

[10] Transactions of the Pathological Society of London, 1905.

This case presents many points suggestive of pernicious anæmia, though the occurrence of this disease so early in life is very unusual, for out of 240 cases collected by Ehrlich only one, or 0·4 per cent, occurred below the age of ten years. The patient was intensely anæmic and during the 14 months that the blood was under observation the red corpuscles were above 2,000,000 for only one period of five months and towards the end they showed considerable variations in size and shape. Nucleated red cells were present in small numbers and in the last count one definite megaloblast was seen. As in pernicious anæmia, rapid changes in the quality of the blood and in the general condition of the patient were marked features. On two occasions the number of erythrocytes fell considerably below 1,000,000 and in the last count of all to 774,000. On the two earlier occasions the numbers were doubled in such short periods as 11 and 15 days, the general condition at the same time noticeably improving after the patient had seemed to be in a very bad way. The hæmoglobin value throughout was high, the average of all the estimations being 1·043. The leucocyte count, on the whole, was low and showed no correspondence with the number of red corpuscles, the highest number, 9200, being found at one of the periods of most marked diminution in the red cells.

An alternative diagnosis which was at one time put forward was that of splenic anæmia, but the spleen was never at any time very large and frequently it could not be felt at all. In splenic anæmia, also, the red corpuscles very rarely show the same marked diminution as in pernicious anæmia and the poikilocytosis is much less marked. Erythroblasts are rare and when present are of normal size and above all the colour index is low. The leucocytes are diminished in number with a slight relative increase in the lymphocytes, and basophiles are very scanty. Taken altogether the blood of this case conforms much more closely to the type of pernicious than to that of splenic anæmia.

The child was shown at a meeting of the Society for the Study of Disease in Children on Oct. 20th, 1905, when it was suggested that the anæmia was due to abdominal tuberculosis, but the necropsy showed no sign of tubercle anywhere.

It is possible that the anæmia supervened upon the chronic gastro-enteritis, and if this be so is it to be considered as merely of a secondary nature? It seems to us that the blood changes were too severe to be accounted for in this way, and for the reasons given above we incline to the belief that the case was one of primary anæmia presenting many characteristics of the pernicious type.

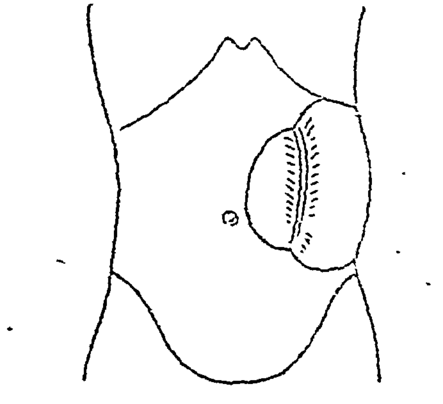
A CONTRIBUTION TO THE PLASTIC SURGERY OF THE RENAL PELVIS.

BY J. W. THOMSON WALKER, M.B. EDIN., F.R.C.S. ENG.,
HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND; ASSISTANT SURGEON TO THE NORTH-WEST LONDON HOSPITAL AND TO ST. PETER'S HOSPITAL FOR STONE AND OTHER URINARY DISEASES.

CONSERVATISM in renal surgery has succeeded a somewhat prodigal tendency in regard to the renal tissue. This is partly the result of increased experience in the surgery of renal disease but above all to a wider knowledge of the pathology and of the recuperative power of the renal tissue after apparently irreparable damage. Plastic operations upon the ureter and the kidney pelvis are performed with greater frequency with the object of saving the kidney, even if it be damaged. The plastic surgery of the renal pelvis has not yet emerged from the earlier stages of its development and I have therefore ventured to give publicity to the following case, which appears to me to possess some points of interest.

The patient, an active young woman accustomed to the muscular exertion of massaging patients, was under the care of Dr. H. Stanley of St. Leonards and Dr. A. M. Ross Sinclair, and was referred to me on account of a moveable tumour on the left side of the abdomen. She related the following history. Seven months before I saw her she had a sudden attack of pain in the left side of the abdomen and indicated a spot above, and to the left of, the umbilicus a little below the margin of the ribs (anterior renal pain region). The pain was severe and shooting through to the back at the angle of the last rib and the erector spinæ muscle and caused sickness. She stated that just before the pain came on she had carried a heavy box downstairs. The pain was relieved by rest in bed and she remained perfectly well for about three months, when she had an attack of influenza and the same pain returned. This was followed by another attack four months later and the last attack came on four days before I saw her. These attacks of pain were all similar in their course. The first attack had some apparent connexion with lifting a heavy weight, the second had no such preliminary exertion, and the third attack came on at night when the patient was in bed. The pain always commenced in front and passed through to the back. It did not track along the ureter. The kidney region was tender during and after the last two attacks. There were no increased frequency of micturition and no change in the urine during or after the attacks. Dr. Stanley discovered a tumour in the left loin. This did not increase in size nor was there any history of its sudden disappearance.

FIG. 1.



On examining the abdomen the left side was seen to be more prominent than the right and was firmer and more resistant. There was some bulging at the side of the left loin with the patient lying on the back, but none posteriorly. On palpation a large smooth mass of the size of a child's examined. No neuritis. No tubercles of the choroid." A blood count on Oct. 4th showed 1,200,000 red cells and 6400 leucocytes to the cubic millimetre and hæmoglobin 30 per cent.

As the child was losing weight she was admitted into the hospital on Oct. 10th. All the mucous membranes were blanched and she was very pale. The temperature was 103·6° F. and the pulse-rate was 160 and of good quality. The tongue was very furred. Nothing beyond the hæmic bruit was found in the chest but the abdomen was very distended and the spleen could be just felt. The temperature fell to normal in two days but rose irregularly to about 100° for another fortnight, after which it settled down. The pulse also became slower and averaged 100 beats a minute. The blood a week after admission showed only 816,000 red cells and 3400 white to the cubic millimetre, with hæmoglobin 20 per cent., but 11 days later it had improved to 1,695,000 erythrocytes and 6800 leucocytes, with hæmoglobin 42 per cent. Vomiting frequently occurred in spite of all treatment and proved unconnected with the administration of arsenic which was tried, as it did not cease when iron was substituted for a time or increase when the arsenic was resumed. At the end of a six weeks' stay in hospital she was slightly improved and had gained 2¼ pounds, her weight then being 29¾ pounds. She was sent away to Brighton on Nov. 21st but the vomiting became worse and on Dec. 28th she was readmitted, having lost three-quarters of a pound in weight. The abdomen was still distended but there was no evidence of fluid and the spleen could not then be felt. The blood count showed only a slight inferiority to that made on Oct. 29th. The temperature was unsettled, rising quite irregularly at intervals, and occasionally reaching 103°. No cause was found for these rises and they apparently did not cause the patient any inconvenience. A seven weeks' course of hæmatogen, iron, and arsenic brought about some improvement and an increase in weight of nearly 3 pounds. The blood on Feb. 21st, 1905, showed 3,760,000 red cells and 8600 white per cubic millimetre and hæmoglobin 72 per cent.

TABLE III.—GIVING DETAILS OF THE BLOOD EXAMINATION IN CASE 3.

Date.	Red cells per c.mm.	White cells per c.mm.	Hæmoglobin per cent.	Polymorpho-nuclears per cent.	Small lympho-cytes per cent.	Large lympho-cytes per cent.	Large mono-nuclears per cent.	Transitionals per cent.	Eosinophiles per cent.	Myelocytes per cent.	Basophiles per cent.	Nucleated red cells per 100 leucocytes.	Remarks.
1904.													
Oct. 4th ...	1,200,000	6400	30·0	—	—	—	—	—	—	—	—	—	Colour index = 1·25.
Oct. 18th ...	816,000	3400	20·0	55·0	37·0		3·0	—	0·5	—	4·5	—	Colour index = 1·22.
Oct. 29th ...	1,696,000	6800	42·0	—	—	—	—	—	—	—	—	—	Colour index = 1·23.
Dec. 30th ...	1,576,000	7600	36·0	55·5	24·5	10·0	6·0	—	0·5	2·6	0·5	0·5	Colour index = 1·17.
1905.													
Feb. 21st ...	3,760,000	8600	72·0	—	—	—	—	—	—	—	—	—	Colour index = 0·95.
April 20th ...	2,048,000	7500	32·0	—	—	—	—	—	—	—	—	—	Colour index = 0·78.
June 14th ...	2,000,000	6000	40·0	—	—	—	—	—	—	—	—	—	Colour index = 1·0. Microcytes and megalocytes. Poikilocytosis.
Sept. 21st ...	827,500	9200	15·0	61	21·6	7·0	7·0	0·6	1·0	1·6	—	2·0	Colour index = 0·906. Microcytes and megalocytes. Poikilocytosis and polychromasia.
Oct. 6th ...	1,600,000	5020	28·0	—	—	—	—	—	—	—	—	—	Colour index = 0·87.
Oct. 18th ...	1,480,000	4000	28·0	—	—	—	—	—	—	—	—	—	Colour index = 0·94.
Nov. 26th ...	774,000	4370	18·0	59	7·6	22·2	3·4	3·4	2·8	1·0	0·6	0·5	Colour index = 1·16. One megaloblast seen.

Average colour index = 1·043.

The patient was sent home but three weeks later returned with increased vomiting and was readmitted on April 14th. The general condition was much the same but the blood had deteriorated to 2,048,000 red cells and 7500 white per cubic millimetre; hæmoglobin 32 per cent. The temperature continued very irregular and the vomiting persisted at intervals in spite of treatment. In June the spleen was palpable again, two inches below the ribs, and the blood elements had further slightly diminished in number, though the colour index had improved and the weight had risen to 31 pounds 10 ounces. As it was thought that she was not doing very well in hospital she was sent home and kept under observation as an out-patient, being sent again to Brighton a little later. After she had been there for a few weeks her mother was telegraphed for as the child was very ill and the vomiting was severe and brought her straight back to the Evelina Hospital. The patient was a good deal collapsed after the journey and intensely anæmic. Her lips were bluish-white in colour and the hands and ears were of a dead waxy appearance. She was admitted again (Sept. 15th, 1905) and the anæmia was found to be of such an extreme grade that there were only 827,500 erythrocytes to the cubic millimetre, the hæmoglobin being 15 per cent.; the leucocytes, on the other hand, were abundant, numbering 9200. Her condition improved, so that by Oct. 6th the red corpuscles and percentage of hæmoglobin were nearly doubled. The patient was bright and cheerful in herself but was frequently very sick without any feeling of nausea. The vomiting occurred quite suddenly and was generally preceded by a cough. The spleen was not palpable but the lower edge of the liver could be just felt. Both ears were discharging. The bowels, as was generally the case, required aperients. The urine was normal. The vomiting was intractable though for a time it seemed better after lavage of the stomach, a proceeding which the child greatly resented. Towards the end of October the red cells had again begun to diminish in number so she was once more sent home. She weighed 29½ pounds. During November the vomiting was rather less frequent but she became more anæmic and dropped to 28¼ pounds in weight. On Dec. 1st she was much worse and very lethargic and was admitted for the last time. The face and lips were almost white; the eyelids were puffy, and the hands and feet were œdematous. The respirations were laboured and 30 to the minute, the pulse was 104, and the temperature ranged from 101·4° to 102°. The blood count showed only 774,000 red cells and 4370 white per cubic millimetre and hæmoglobin 18 per cent. (See Table III.) The temperature dropped to normal but the child died on Dec. 5th, 1905, having complained of pain in the abdomen and back during the previous day.

Necropsy.—At the post-mortem examination the body was found to be fairly well nourished. Rigor mortis was slight and post-mortem staining was not present. The muscles were brownish-red and the fat was a deep yellow. The lungs were very œdematous. Both pleural cavities contained a large quantity of clear fluid. There were some recent adhesions about the base of the left lung. The peribronchial glands were large and pigmented. The pericardium contained nearly three ounces of cle little difficulty it was brought out on to the loin and this condition was found. The kidney was attached to a large bladder-like cyst which was recognised as an enormously distended pelvis. The kidney itself was dilated to a moderate degree. The whole mass, cyst and kidney, was of about the size of a child's head. The ureter was picked up below the mass and traced upwards. It was small and showed no signs of dilatation or thickening. The upper end lay upon the surface of the cyst and was firmly bound down to it by adhesions for about one and a half inches. (Fig. 2.) The renal pedicle was long and allowed the mass to lie upon the loin without putting any strain on the vessels, so that the necessary manipulations of a plastic operation were carried out in comfort. The ureter was dissected up off the surface of the cyst until its junction became perpendicular (Fig. 3) and a longitudinal incision was then made from the point of union along the posterior surface of the ballooned pelvis almost to the margin of the kidney hilum. The cyst collapsed and allowed a careful survey of the interior of the dilated pelvis and kidney; a bougie was inserted into the upper end of the ureter and passed readily down to the bladder. There was no narrowing at the point of junction between ureter and pelvis. The incision in the wall of the pelvis was continued into the ureter by slitting this tube for about a quarter of an inch. A large triangular portion of the posterior wall of the renal pelvis was now cut away, the base of the triangle lying about a quarter of an inch from the margin of the kidney hilum. (Fig. 4.) An incision was made in the convex border of the kidney about its mid point, and a long pair of artery forceps was pushed through this into the cavity of the pelvis and the conical point inserted into the upper end of the ureter. (Fig. 5.) Over this the margins of the wound of the pelvis were then brought together, and a series of interrupted sutures of fine silk was inserted. (Fig. 6.) In this way the lateral angles of the triangle met about one-third of the distance from the renal end of the wound. The kidney itself was bent pole towards pole so that these angles might be approximated, but there was no tension or kinking of the organ, and when all was finished the bend in the middle of the kidney had almost disappeared. The leathery wall of the pelvis did not admit of the application of Lembert or other special sutures, and a series of closely set interrupted stitches passing through the whole thickness of the pelvic wall was used. With the wound closed and the kidney held in the position it would eventually occupy the pelvis was now reduced to a hollow cone which passed without constriction or angle into the ureter. An incision was now made through the fibrous capsule of the kidney in the form of an ellipse around the wound in its convex border and further incisions from this along the convex border to each pole. The capsule of the kidney was then stripped from the anterior and posterior surfaces of the organ, leaving a margin of about three-quarters of an inch around the wound undisturbed. The capsule from the anterior surface was clipped away at the margin of the hilum, but that from the posterior surface, still attached along the posterior margin of the hilum, was turned over so as to cover the wound in the pelvis, and a few retaining stitches were placed along the edges. (Fig. 7.) Four stout strands of catgut were passed through the kidney substance so as to bring the edges of the kidney wound together, being so placed that the points of entrance and exit were within the surface area undenuded of capsule. These were tied and the ends left long. The kidney was then returned to the abdomen. In turn each of the ends of catgut were threaded on curved needles and brought through the muscles at the upper and lower edges of the lumbar wound and tied so that they formed a part of the series of muscle sutures. Thus each catgut suture passed through the kidney substance uniting the edges of the kidney wound and then one end passed through the muscles of the upper margin of the lumbar wound, while the other end passed through the muscles of the lower part of the wound and the ends were again knotted. The muscle layers were then united by catgut sutures and the skin wound was closed, leaving a rubber drain down to the posterior surface of the kidney. The drain was removed in 36 hours as there was no trace of urine on the dressings. Healing was aseptic and the recovery from the operation was uneventful.

On examining the patient eight months after the operation the kidney was found in the position it had been given at the operation. It was small and moved with the respiratory movements. There was no pain or other urinary symptom and no tenderness was experienced on handling the kidney. The patient was unwilling to submit to a further separation of the urines so that I had to forego the analysis of the secretion of the restored kidney.

One or two points merit brief notice. The condition was undoubtedly primarily a moveable kidney in which the ureter had become kinked and fixed to the surface of the pelvis by adhesions. The mechanism of this is not difficult to reconstruct. The moveable kidney swings around its vascular pedicle so that the hilum ever faces the vascular attachment, being directed upwards and to the middle line or directly upwards. The ureter thus acts as a drag upon the swing. The wonder is rather that kinking so seldom occurs and that the kink is not more often perpetuated by the formation of adhesions. Probably the ureter escapes from the fact that the swing is seldom a direct one, like that o pendulum, and a certain amount of rolling over is added which to some extent releases the ureteral bend. If the pelvis has once become distended the bent ureter lying upon its surface becomes fixed there by adhesions and further distension increases the obstruction to the outlet by pressing upon the tube. In this case there was certainly no true stricture formation at the upper end of the ureter such as has been found in some similar cases, nor was there any vascular cord over which the ureter was bent.

In regard to the plastic operation upon the kidney pelvis but little need be said. So far as I am aware, the method of excision of a large triangular portion of the kidney pelvis in order to reduce its capacity has not been previously employed.[1] The covering of the wound with kidney capsule is an additional novelty. Further, the method of fixing the kidney in this case is one which seems to me to have something in its favour. It is a combination of the decortication with the non-decortication methods which I am inclined to believe has some of the advantages of both. The object of leaving an area of renal capsule through which the sutures enter and emerge is the prevention of cutting out of the suture. Again and again I have met with the difficulty of the cutting of sutures through a friable decorticated renal substance, but since adopting this method of leaving an island of capsule I have had no further trouble on this account. The stripping of the rest of the capsule insures all the advantages which are claimed for the methods of decortication. I employed at one time a method by which the capsule was stripped forwards and backwards from a median vertical incision along the convex border of the kidney. By rolling these pads of capsule up along the anterior and posterior margins of the hilum a roll was obtained through which sutures might be passed and fixed to the upper and lower margins of the lumbar wound. This method, or something similar, has, I find, been used by Mr. W. H. A. Jacobson, who did not, however, strip the capsule from more than half the surfaces of the kidney. *I have experienced* certain disadvantages with this procedure. The sutures if drawn tight will project the denuded kidney into the lumbar wound and it is sometimes a matter of difficulty to find a sufficient muscular covering for the organ. This implantation of the kidney among the lumbar muscles appeared to me to have the advantage of securely fixing the organ in place, but the weakening of the abdominal wall was considerable and was not, I thought, sufficiently compensated for by the increased surety of fixation. But another consideration decided me to abandon the method. It is, I believe, of the utmost importance to explore these kidneys by incision, for, in some of them at least, the symptoms result rather from some renal disease than from the actual mobility of the organ. Such being the case, an incision and exploration of the organ are a safeguard against the serious fault of overlooking an important disease while attending to what in such a case is a minor trouble. An incision in a decorticated kidney, as I have said, is a difficult wound to close on account of the friability of the tissues denuded of capsule. For these reasons I have abandoned the method and prefer that which I have described.

It is an important point that the catgut sutures which close head could be felt in the left lumbar region. The mass had smooth rounded surfaces and no edges or notch. It was oval in shape and appeared to consist of two portions marked off from each other by a vertical groove. (Fig. 1.) With the patient lying on the back it did not quite reach the umbilicus and the lower limit was just above the iliac crest. The mass occupied the renal area and could be readily palpated between the hands placed at the costal angle and on the front of the abdomen. It moved freely with respiration. It could be pushed in all directions. When pushed downwards into the iliac fossa the fingers could be slipped above it between the ribs and the mass. On pushing it up under the ribs a bulging of the epigastric space took place. The mass could be readily pushed across the middle line until its right limit was midway between the umbilicus and the right side of the abdomen. In all its movements it appeared to swing round a pedicle fixed above the umbilicus. It could not be forced down into the pelvis. On lying upon the right side the mass fell away from the left loin towards the right side. There were absolute dulness on percussion over the portion of the swelling to the left of the groove and comparative dulness over that part to the right of the groove. There was no tenderness or aching. The mass was firm but not hard. No fluctuation could be obtained. The temperature was normal. The urine contained some phosphates, a trace of albumin, and there were a few pus cells and granular and hyaline tube casts. With the cystoscope the bladder was healthy and both ureteral openings were normal. No efflux could be seen from the left side. With a Luys separator a small quantity of urine was obtained from the left side and this contained a trace of albumin, pus, and epithelial cells, and a few granular and hyaline casts. The right urine showed no albumin but a few casts were present. The diagnosis of moveable kidney with hydronephrosis was made.

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[1] In a recent paper (Bulletin of the Johns Hopkins Hospital, June, 1906) Kelly states that he has twice employed "plication in hydronephrotic renal pelvis." The method has already been described by Israel. It is open to the objection that if any permanent kinking or stricture exists it remains untreated, and it is a difficult matter, without opening the pelvis and actually probing the ureter, to say whether or not there is some narrowing of the uretero-pelvic junction or an oblique insert of this tube.

FIG. 2.

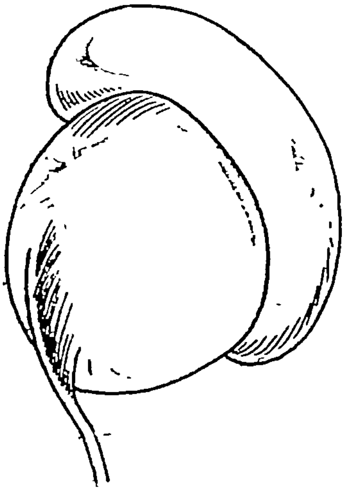


FIG. 3.

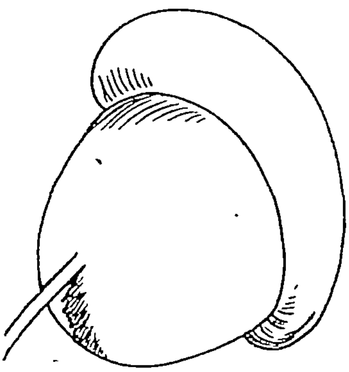


FIG. 4.

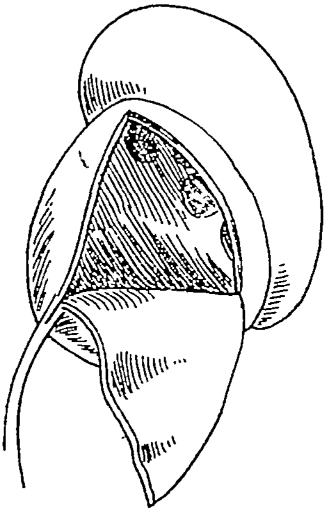


FIG. 5.

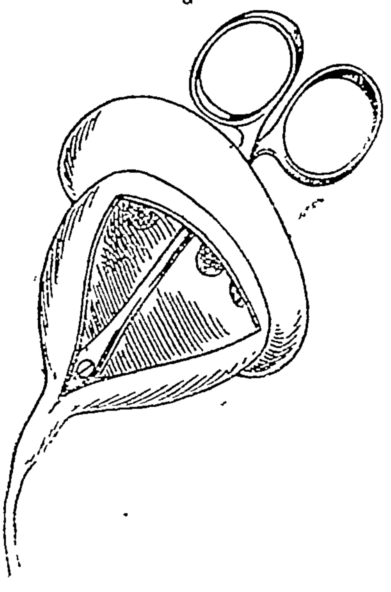


FIG. 6.

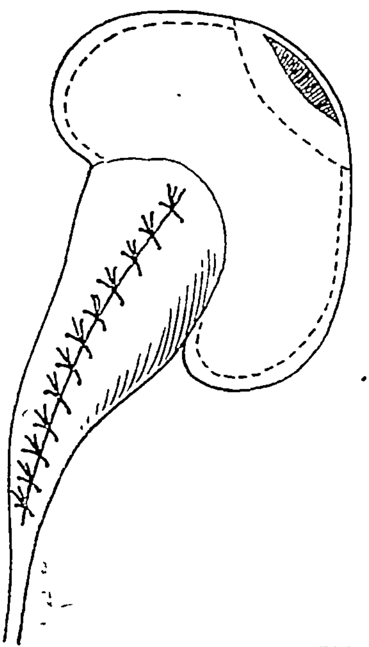
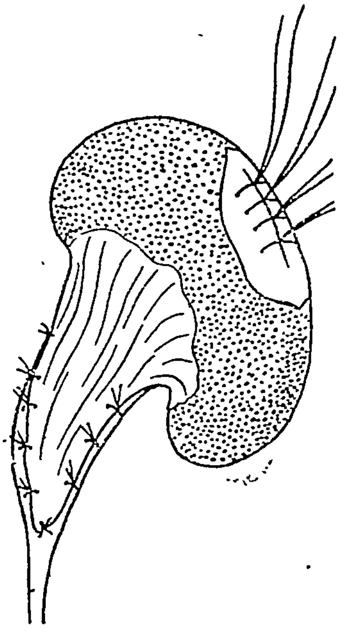


FIG. 7.



Figures illustrating steps in plastic operation upon the renal pelvis. Fig 2. Distended renal pelvis with adherent ureter. Fig. 3. Ureter dissected to its insertion. Fig. 4. Triangular flap of cyst wall thrown down, showing the interior of dilated kidney. Fig. 5. Portion of cyst wall removed and forceps in position. Fig. 6. Edges of wound united. Dotted lines show incisions through fibrous capsule. Fig. 7. Capsule stripped and stitched over wound. Kidney sutures in position.

The kidney was exposed by a moderate-sized oblique lumbar incision and presented in the wound; with has a marked effect on leucocytosis. A very full account is given of drugs that act on certain nerve cells, such as coniine, nicotine, and their allies. In this connexion the diagrams and work of Langley are introduced with useful effect to help to lighten the path of the struggling pharmacologist, whose knowledge of physiology and the complexities of the ganglionic nervous arrangements may be somewhat rusty. The fruitful subject of drugs that produce convulsions, whether they are discharged from the cerebrum, bulb, or cord, is also treated mainly from the point of view of the pharmacologist.

The vegetable hypnotics, represented by opium and its derivates and the local anæsthetics, are fully and intelligently treated, and bring the student to the details of the group of diuretics, and of cardiac tonics, when, by a sudden transition, we arrive at Chapter XII. on certain drugs which excite sensory nerve endings, such as aconite, veratrine, and stavesacre. Ergot and drugs altering the calibre of the bloodvessels take up two more chapters, and between these chapters and the chapter on the coal-tar or aromatic group (including antipyretics, antiseptics, and disinfectants) is the chapter on cinchona bark. Purgatives, cholagogues, astringents, and simple bitters follow, and then we proceed to a full account of the drugs affecting respiration. Next comes a consideration of essential oils and drugs acting on the skin. This leads up to the theory of ions, and thus onwards to the action of various bases, acids and alkalies, the group of the halogens, and the heavy metals, such as arsenic, antimony, mercury, and iron. Chapter XXX. (pp. 402–11) deals with anthelmintics and drugs used to kill parasites; and then the student finds himself studying emollients, demulcents, sweetening and colouring agents, to wind up with information about ferments, cod-liver oil, vegetable toxins, internal secretions, serum therapy, and antagonism.

We have briefly enumerated the subjects treated in their order, but it should be noted that at the end of each group or chapter there is added a materia medica dealing with the "preparations" of the drugs the action of which is discussed. Many tracings, well printed, afford testimony to the value of the graphic method as applied to pharmacology, while a considerable number of excellent schemata such as teachers frequently use will be found helpful. The work is a compact review of all the leading facts and theories in pharmacology which will be welcomed by teachers of this subject. Perhaps the student will view the additional knowledge from a different standpoint, but the old traditions of materia medica in its wide sense are gradually being replaced by accurate knowledge of the actions of drugs, and as the student has to learn the newer knowledge, the sooner the old teaching is given up the better, so that space may be found in his mental pigeon-holes for facts of greater value.

Text book of Physiology for Medical Students and Physicians. By W. H. HOWELL, M.D. Illustrated. London and Philadelphia: W. B. Saunders and Co. 1905. Pp. 905. Price 18s. net.

PHYSIOLOGY is a continually growing science and nothing shows it more than the steady output of new text-books on this subject or the steady flow of new editions of what are regarded as standard works. The book before us, by the eminent professor of physiology in the Johns Hopkins University, Baltimore, is, we think, a great improvement on the "American Text-book of Physiology" edited by the same author. It is divided into eight sections which deal successively with muscle and nerve, the central nervous system, the special senses, blood and lymph, circulation, respiration, digestion and secretion, heat production and regulation, and reproduction. Of general physiology in the ordinary sense there is practically none, nor is it necessary, for the medical student as a rule has learned the broad principles in his biological course. Where all is so good and so tersely put it is difficult to say which of the eight sections is the best, but perhaps those on the special senses and the nervous system show the author at his finest. The subjects are concisely treated, yet with a lucidity that makes reading a pleasure. A small yet sufficient number of references to literature are given for the sake of those who may wish to follow any particular subject more in detail, while occasional references to works of historical importance are inserted. An appendix dealing with proteids and their classification and diffusion and osmosis closes the work and brings the text to nearly 900 pages. The number of illustrations is 272 and some of them are full-page plates in colour taken from standard works.

This is one of the best recent text-books on physiology, and we warmly commend it to the attention of medical students who desire to obtain by reading a general all-round, yet concise, survey of the scope, facts, theories, and speculations that make up its subject matter. Moreover, the physician also will find much in its pages that will throw new light on many problems of disease.

Principia Therapeutica. By HARRINGTON SAINSBURY, M.D. Lond., F.R.C.P. Lond., Physician to the Royal Free Hospital and to the City Hospital for Diseases of the Chest. London: Methuen and Co. Pp. xi.–244. Price 7s. 6d. net.

IN his prologue Dr. Sainsbury reminds us that the master thinker, Plato, said that "an unexamined life is not worth living." The author would apply the same criticism to medical practice; and for this reason, and because we are in peril of being engulfed in the flood of new remedies, he here sets down certain considerations in the hope that they may prove of service "to those who have undertaken to navigate the ship of health." His book is one of general principles and as such is valuable, while he justly points out that "details without guiding principles yield but a busy foolishness." The book is the work of a scholarly mind and makes most pleasant and instructive reading; it is true, however, that it is written chiefly for the man of leisure, while the busy worker will feel that much that is so true and so well said in this book might have been put into a very much smaller compass. Perhaps it might, but as a literary performance the present shape of the volume is justified. The book is divided into a Prologue, 12 chapters, and an Epilogue. Of the 12 chapters, the first is written in the form of a dialogue between a physician and a pathologist, the scene being in a dead-house. The second and third chapters deal with curative and preventive medicine, the fourth chapter is headed "Primum Non Nocere;" and the fifth "Secundo Prodesse." In the sixth chapter the combining of remedies, therapeutic complexity, reinforcement, and antagonism are discussed. In the remaining chapters the prescription, dietetics, habit, and the order of treatment are considered. The final chapter is headed "Imponderabilia" and has for its motto, "Non pane solo vivet homo"—a motto which may be regarded as a good sub-title for the whole book. We will close this brief notice of a most interesting volume by quoting two characteristic passages in illustration of Dr. Sainsbury's turn of mind. In writing of death he says: "Forbidding enough 'his images and storied aspects,' whilst we contend with him for the mastery, but his victory assured and accepted there follows peace, and for the wounds which he has himself inflicted, it is his custom to administer an unfailing opiate—in a drowsiness we take our departure." He writes that "we should bring to the bedside a great hopefulness, a determined optimism, but if, thus armed, the futility of the strife is irresistibly borne in upon us, then we should put aside our remedia as the renal wound serve also to sling the kidney, for the insertion of additional sutures is thus avoided. The fixed kidney in this, as in most of these methods, is in an unnatural position, lying more obliquely and much lower than in its normal state. This is, however, in my experience no disadvantage, for I have not seen any resulting sign of obstruction to the ureter in the cases in which the kidney was fixed in this position.

Queen Anne-street, W.

Reviews and Notices of Books.

Manual of Medicine. By THOMAS KIRKPATRICK MONRO, M.A., M.D Glasg. Second edition. University Series. London: Baillière, Tindall, and Cox. 1906. Pp. 1022. Price 15*s.* net.

ON the appearance of the first edition of this excellent manual of medicine we had the pleasure of reviewing it very favourably. The second edition is now before us and has been brought quite up to date by the author. Fresh articles have been written on *tropical splenomegaly, trypanosomiasis,* and piroplasmosis; additional illustrations have been introduced and one figure showing the cortical centres on the lateral aspect of the hemisphere has been re-drawn, so as to represent the most recently accepted teaching.

The volume opens with the subjects of fever and of the specific infectious fevers. In writing of typhoid fever we do not find any mention of the advisability of giving urotropine as a measure of preventing infection by the urine. The researches of Dr. P. Horton Smith might with advantage be alluded to in a future edition. The section on relapsing fever is well up to date, the investigations of Dr. Dutton and Dr. Todd receiving due mention. Lobar pneumonia is, of course, placed amongst the infectious fevers. The author, in the treatment of this affection, we are sorry to see, does not mention antimony. In writing of tuberculosis he evidently does not agree (and here he is in consonance with most authorities) with the dictum of Koch that there is little or no danger from tuberculous cattle. The section on this disease is very complete. The treatment advised in cholera is not altogether satisfactory. For instance, the author recommends the diarrhœa to be checked by astringents, whereas there can be little doubt, we believe, that the treatment by purgatives is by far the best, and, indeed, this was recognised a few years ago by the Royal College of Physicians of London. No mention is made of the late Sir George Johnson's lucid theory of collapse. Yellow fever is handled in a very satisfactory manner and the importance of the rôle played by the mosquito is fully set forth. Hamilton Wright's investigations on beri-beri receive their due appreciation and the latest researches on yaws are set forth. The author's successful attempt to keep his manual up to date is well exemplified by his treatment of the subject of tropical splenomegaly, wherein the recent views of Major W. B. Leishman, R.A.M.C., Major C. Donovan, I.M.S., Captain L. Rogers, I.M.S., and Lieutenant S. R. Christophers, I.M.S., are all set forth. In the account of trypanosomiasis and piroplasmosis the student will find all the most recent researches detailed.

Section II. is devoted to constitutional diseases. The theories concerning gout are detailed, special attention being paid to the researches of the late Sir William Roberts. In the treatment of osteo-arthritis the administration of guaiacol carbonate might perhaps have been more strongly recommended. The chapter on diabetes is excellent and nothing of importance is therein omitted.

In Section III. we find an account of the diseases of the circulatory system. We cannot congratulate the author on the diagrams showing the relation of the valves but the illustration of the relations of the heart and great vessels to the lungs and thoracic walls is excellent. The varieties of the pulse are very lucidly set forth. In that dread disease, ulcerative endocarditis, antistreptococcic serum is rightly advised. In the section on the various valvular lesions the author, as regards prognosis, considers that mitral incompetence is the least dangerous; next comes aortic stenosis, then mitral stenosis (probably); and, finally, aortic incompetence, thus not completely agreeing with the views of Sir William Broadbent

Passing on to the subject of aortic aneurysm, we are glad to see that the author draws attention to the method of treatment by the hypodermic injection of a 2 per cent. sterilised solution of gelatin. He, however, advises the gelatin solution to be given by the rectum in view of the fact that many cases of tetanus have followed this plan of treatment. The account of the different varieties of corpuscles of the blood in various diseases is succinctly written and should not cause in the mind of the reader any confusion, which cannot invariably be stated concerning such accounts. The different diseases of the blood are also described in a very luminous manner, the only affection that might be more fully set forth being scurvy, as there is no mention here of any of the theories that have been put forth to explain it, such as those of the late Dr. S. H. Ralfe or of Sir A. E. Wright. The sections devoted to the respiratory, digestive, and renal systems next follow and here the article on Abscess of the Liver is not quite up to date as no mention is made of the sub-hepatic abscess of Cantlie.

The section on diseases of the nervous system is the best in the volume. There is an excellent diagram representing the sensory and motor neurons. The whole subject—one that generally is extremely difficult to the student—is so well and lucidly set forth that it is a pleasure to read it. The diagrams employed are excellent and the descriptions of the various diseases leave little or nothing to be desired. The author is to be congratulated heartily on this section of the work. Finally, the volume ends with an account of the diseases of the skin, of the various intoxications, and of the diseases due to parasites. In the chapter on sunstroke we note that no mention is made of the actinic theory, an omission of some importance with respect to the successful prophylaxis founded on this theory.

A Manual of Pharmacology. By WALTER E. DIXON, M.D. Lond. Illustrated; 86 figures in the text. London: Edward Arnold. 1906. Pp. 451. *Price* 15*s.* net.

THE object of this manual is to give the student a simple account of the science, albeit an experimental science, of pharmacology; the work is not a text-book on materia medica, while the introduction of therapeutics is only to serve to illustrate the pharmacology. The art of therapeutics can only be dealt with properly at the bedside, and the author thinks that the student should not be burdened by committing to memory the composition of various pharmaceutical preparations. We agree with him here, for the modern student is already overtaxed by an unnecessary amount of such futile labour.

After some general statements the author deals with alcohol and its action, and he considers that the direct evidence is almost overwhelming in support of the theory of Schmiedeberg—that this drug does not exert any direct stimulant action on the central nervous system but that on the contrary it depresses from the beginning. Anæsthetics, narcotics, and hypnotics are next dealt with, and some of the actions of these drugs are illustrated by excellent tracings. A more or less specific group of drugs which act on nerve endings is considered, including those which excite (colchicine, pilocarpine, muscarine, and so on) or depress the activity of nerve endings (belladonna, stramonium, and hyoscyamus). Colchicine, in addition, entirely sensible all that the author says of the value of fresh air in towns, of the physique of boys and girls, of clothing, and of exercise. Mr. Cantlie feels strongly on the subject of infant feeding and is somewhat hard upon the monthly nurse who recommends that the mothers should give up feeding their children. It is always unsound to attribute motives in the course of an argument, and we think that Mr. Cantlie goes a little too far in suggesting that our nation is being hurled to destruction through selfishness on the nurse's part and the desire to be free from the *mother's interference*. We are glad, however, to see the condemnation of the infant's "comforter" (the solid indiarubber teat), though it may be doubted whether it is really the constant cause of adenoids. On the subject of dancing as a mode of exercise Mr. Cantlie desires that we should learn its significance, and as an example he analyses the various figures in the now *neglected* quadrille. With the same intention the author has much to say in favour of gymnastics and gymnasium drill, while the postscript speaks of the physical efficiency of the Volunteers and the importance of developing this force instead of *reducing its numbers*. There can be no doubt of the immense national importance of physical efficiency, and for those who must be approached without circumlocution, without unnecessary detail, and without any assumption by the author that they are *familiar with* physiology or physiological literature Mr. Cantlie's book should be quite serviceable. Well-written prefatory remarks will serve to impress the audience aimed at with the great interests involved in an organised attempt to improve the national physique.

JOURNALS AND MAGAZINES.

The Liverpool Medico-Chirurgical Journal.—With the July issue, as stated in the preface, this journal "is presented under those broader auspices which we feel *convinced* are necessary to its professional success and financial stability." Its editor is Dr. John Hay, assisted by a strong editorial committee with Sir James Barr as chairman. This number runs into 331 pages, of which 308 are practically original matter, derived chiefly from the proceedings of the Liverpool Medical Institution. Medicine, surgery, gynæcology, and pathology, besides special branches, are all represented by valuable contributions. We can only allude to the article by Dr. William Carter on the Use of Small Doses of Potassium Iodide and to that by Mr. John H. Watson on Polycythæmia Vera, with a note on an instrument for estimating the viscosity of the blood (a description of which was published in THE LANCET of July 14th, p. 89), in the medical section; and to those on Intraperitoneal Rupture of the Bladder and on Internal Derangement of the Knee Joint, by Mr. R. W. Murray and Mr. W. Thelwall Thomas respectively among the surgical papers. We have already commented on a new theory of female genital activity, by Dr. W. Blair Bell,[1] in which the uterus is regarded as giving rise to an *important* secretion.

The Medical Chronicle.—In the July number Professor G. A. Wright deals with the Nomenclature and Classification of Diseases of the Joints and proposes a new scheme of arrangement of these conditions, many of which seem as yet too little understood to admit of definite classification. A paper by Dr. David Drummond contains some interesting observations on symptoms met with in cases of heart disease, and a note by Mr. E. D. Telford records a case of Cancrum Oris in which recovery took place after injection of diphtherial antitoxin.

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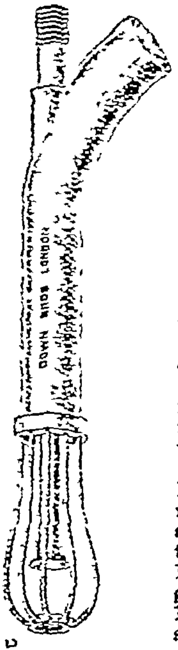
[1] THE LANCET, August 4th, 1906, p. 311.

New Inventions.

A TWO-WAY PERITONEAL IRRIGATOR.

IN spite of the weighty and widespread opinion in favour of dry swabbing in purulent peritonitis, as opposed to irrigation with normal saline solution, I am still of opinion that the latter method is the better, provided one can irrigate without forcing infective fluid into non-infected areas. That is practically impossible by the ordinary methods of irrigation. At my instigation Messrs. Down Brothers, Limited, have made the instrument here depicted, which, I think, permits, indeed favours, localised flushing without infecting non-infected areas. The instrument consists of a central delivery tube, made bell shaped at its distal end so as to dissipate the force of the injected fluid. The egg-whisk arrangement, made of strong smooth wire, prevents coils of bowel pressing around the mouth of the exit tube and thus obstructing the outflow of the irrigating fluid and at the same time allows irrigation of the adjacent parts. The exit tube surrounds the delivery tube at its proximal end and the exit area is several times greater than the sectional area of the delivery tube. The exit tube is continued laterally by a stiff rubber tube of sufficient length to reach a receptacle at the side of the table. When this rubber tube is filled with fluid a strong syphon action is obtained. The advantage of this is evident. If by any chance the suction draws intestine between the wires of the "whisk" part gentle nipping of the rubber part will tend to remedy the tendency. The instrument can be taken to pieces for cleaning purposes.



A few weeks after Messrs. Down Brothers had made the instrument for me I was much interested to find that a somewhat similar device had been thought of and put into practical shape by Dr. Joseph A. Blake of New York ("Surgery, Gynæcology, and Obstetrics," May, 1906). I venture to think that the instrument figured here is superior to his and will give even better results than he has obtained. By the use of such an instrument much time, manipulation, and mechanical insult of the peritoneum are saved, thereby lessening shock. There is not the same tendency for the bowel to protrude as with the usual method of irrigation. There is infinitely less danger of carrying infection to uninfected areas. The irrigation may be carried out through a small incision if that be thought desirable. It will indicate, as Dr. Blake points out, the extent of the infection if one watches the condition of the returning fluid as the various peritoneal recesses are successively washed out.

H. M. W. GRAY, M.B. Aberd., F.R.C.S. Edin.

Aberdeen.

FLEECY MATERIAL FOR WET-BANDAGING.

THE Sandown Company of Stanford-street, Nottingham, has sent us a sample of a new kind of bandage which is said to be used extensively by veterinary surgeons for the wet-bandaging of the legs of horses, and the suggestion is made that these bandages might sometimes prove useful in medical or surgical practice. The sample which we have received is of varying thickness. One portion, which is about three and a half feet long and three and three quarter inches wide, consists of a double thickness of a soft fleecy material; the fleecy portion then comes to an end and the bandage is continued for a further distance of about four feet in a material resembling the leg of an ordinary cotton stocking woven circularly, so that it is everywhere smooth, soft, and of double thickness, without any possibility of fraying out at the edge. An extraordinary power of retaining moisture is claimed for this bandage and it is said to have been found beneficial in the treatment of sore throats and sprained joints.

cures, and ranging ourselves upon the side of Death, make easy the couch with such solatia as may offer. He would come as a friend, let us not compel him to hostility, since he must prevail." We welcome this book as the work of a scholar and an erudite physician.

LIBRARY TABLE.

Phlebitis and Thrombosis: the Hunterian Lectures. By WARRINGTON HAWARD, F.R C S. Eng., Consulting Surgeon to St. George's Hospital. London: *Baillière, Tindall, and Cox.* 1906. Pp. 88. Price 5s. net.—In these Hunterian Lectures Mr. Haward gives us an able and scholarly survey of the present position of our knowledge of phlebitis and thrombosis. For some years he has been making and collecting observations relating to thrombosis and he has found that the remoter effects of the disease do not seem to have attracted much attention from surgeons. These collected lectures are especially valuable because the author devotes considerable space to the treatment of the conditions he describes; though his suggestions would be even more valuable to the practitioner if the prescriptions for the various applications recommended were set forth in full. But consideration of the time at his disposal probably dictated the scope which the lecturer laid down for himself. Mr. Haward dwells on the smallness of our knowledge of the vital chemistry and physiology of the blood and remarks that "here is a wide and fertile field for our advancing physiological chemists." The book is illustrated with eight excellent plates.

Traitement des Hémorragies Puerpérales. Par le Docteur G. KEIM, Ancien Interne des Hôpitaux de Paris et des Maternités de l'Hôtel Dieu, Saint-Antoine, et Lariboisière. Paris: Vigot Frères. 1905. Pp. 235. Prix 3 fr. 50c.—As the author truly remarks in his preface, the treatment of the hæmorrhages occurring in connexion with childbed requires a very perfect knowledge of what is to be done and promptitude in carrying out whatever measures the medical man may select. With a view to assisting the latter in coming to a conclusion what to do in such cases, and how to do it, Dr. Keim has collected together in this book the different methods of treating hæmorrhage when it occurs during pregnancy, during labour, or in the puerperium. As a necessary preliminary to the study of the artificial arrest of bleeding the author devotes a chapter to the anatomy of the pregnant uterus, and this is followed by one on the defences of the organism as a whole against hæmorrhage. He next discusses the various medicinal remedies and modes of treatment, and then considers the best methods to pursue in the different forms of hæmorrhage which may be met with. Lastly, he describes the means of treating the various conditions which ensue as a consequence of the loss of large quantities of blood from the body. The book presents within a small compass a considerable amount of information, and should prove of value to students and practitioners acquainted with the French language.

Health Talks about Children: An Appeal for the Child. By JOHN GRIMSHAW, M.D., B S. Lond., D P.H. Cantab. Birkenhead: Brimmell's Printing Works. 1906. Pp. 83 Price 1s. net; postage 2d—The health and lives of infants and young children are so needlessly sacrificed by avoidable mistakes that any additional way of diffusing information must be welcomed Dr. Grimshaw's book is written with the "good intentions of helping mothers to care for their children and of inspiring others to help the mothers," and is dated from the "Dispensary for Children, Conway-street, Birkenhead." The teaching is all very obvious; for instance, he insists that "it cannot be too strongly impressed upon the mother that many of the symptoms and sicknesses of the infant are better treated by careful feeding or by modifications in the food than by drugs. Most children who resist this form of treatment, or that by suitable measures of hygiene, are not amenable to healing by medicine." The book is divided into six chapters, or "Health Talks," as the author designates them, and an appendix which is a valuable part of the book. In the appendix carefully drawn up rules are set forth for the feeding and bringing up of children, and the mother is advised "What to do and what not to do" in terms that should make her avoid many omissions and transgressions. The sixth "talk" is headed "Consider the Child" and is an appeal to the social reformer. Dr. Grimshaw inveighs against the old-fashioned babies' bottle and advises that we should follow the steps of France and certain States of the American Union where the sale of such bottles is illegal. The book is quite a sound collection of approved facts presented in a way which ought to convince the mother and be very helpful to her.

The Care of Children. Practical Hints for Mothers and Nurses at Home and Abroad. By ROBERT J. BLACKHAM, D P.H R C P S. Lond., Captain, R A M.C. Revised and enlarged edition. London: The Scientific Press, Limited. Pp. 84. Price 1s. 6d net.—The author tells us in his preface that many readers of the first edition of this little book suggested that he should prepare an enlarged edition which would appeal to a wider circle of readers than that for which the "Hints" were originally intended. A study of the report of Mr. T. W. N. Barlow, the medical officer of health of Bootle (Liverpool), which was published in 1905, has induced him to comply with the suggestions made to him. Captain Blackham entirely concurs in Mr. Barlow's view that it is by the education of mothers and nurses alone that the dark pall of ignorance can be dispelled, only in this way can the problem of the proper feeding of children, the most important of all questions affecting the well-being of humanity throughout the civilised world, be efficiently dealt with. The book is clearly intended for the mother and the nurse and has been prepared from the points of view both of a medical officer of health and of a family physician. Captain Blackham divides his work into nine chapters as follows: Hints on Food; Hints on Drink and Medicines; Hints on Clothing; Hints on Cleanliness; Hints on Rest and Exercise; Hints on Infectious Diseases; Hints on the Nursery; Hints on Nursery "First Aid"; and Hints on Nursery Cookery. We have examined this little book carefully and find it thoroughly sound. It is a collection of truths and experiences by which, if studied by mothers and nurses, the readers will be assisted to rear healthy children. The author does not pretend that he has discovered anything new but he has given us a most useful collection of truths in regard to children expressed in good English and arranged in a convenient way.

Physical Efficiency. By JAMES CANTLIE, *M.A., M.B. Aberd.,* D P H. R C P. Lond. With a Preface by Sir LAUDER BRUNTON and a Foreword by Sir JAMES CRICHTON-BROWNE London and New York: *G. P. Putnam's Sons.* 1906. Pp. xxviii.-216. Price 3s. 6d.—The author has intended to present a popular review of the deleterious effects of town life upon the population of Britain and to give suggestions for their arrest. The importance of the subject is vouched for by topical and curious quotations from lectures at Exeter Hall and at the Parkes Museum of Hygiene, from *Punch* and other papers, from Shakespeare, and from the English Mr. Winston Churchill. The style is emphatic and picturesque, which means to say that it is well calculated to arrest the attention of persons not in the habit of looking deeply into what they read. We find this malady shall not be subject to any of the disabilities under the penal clauses of the Public Health Act, 1875, or other sanitary Acts. This latter is a wise and, in our view, necessary exception, but we believe that there are still some who see no objection to dealing with pulmonary tuberculosis in the same fashion as it is customary to deal with small-pox. Those who think in this way would have a case of notified pulmonary tuberculosis confined to his home or to a sanatorium until the treatment adopted or the intervention of death should set him free again, but the bulk of public and of professional opinion is against this extreme view. But modified notification, especially in the larger towns, appears to be meeting with a fair measure of success, and where this is the case the fact is doubtless due to the circumstance that the medical officer of health recognises the absolute necessity for caution and discretion in the matter. But in order that notification may meet with genuine success the coöperation of the medical practitioner is essential, and if the profession generally feels that the information which it furnishes to the health officer is being abused, and is leading to unjustifiable hardship to the patient, there must be difficulties in inducing the medical practitioner to notify. We mention this because, as far as we can judge from the material at present available, there is, perhaps in a few isolated cases, a disposition on the part of sanitary authorities to press matters in the same fashion as is necessary in dealing with the highly infectious diseases, such as small-pox and typhus fever. We are glad to see that medical officers of health are recognising the impossibility of such an attitude.

But granted the principle of modified notification of pulmonary tuberculosis, there is still some difference of opinion as to procedure. To notify a case of pulmonary tuberculosis because there is a suspicious dulness at one apex is altogether unjustifiable, there being no danger to the public from such a case. We note, therefore, with pleasure in connexion with the coöperation of the medical practitioner with the health officer, that in the case of Birmingham, where voluntary notification was adopted last year, the medical officer of health (Dr. J. Robertson) has pointed out in his current annual report (after referring to the fact that although a considerable number of cases have been notified among the artisan class comparatively few have been notified from the middle and upper classes) as follows: "It will be recognised, however, that among the middle and upper classes such notifications are not necessary because in the majority of cases the patients already receive the necessary instructions in the way of preventing them from becoming sources of infection to others." Although in a sense this raises a somewhat invidious class distinction and puts a heavy burden, as it were, upon that class which is least able to bear it, the distinction is, we think, a thoroughly logical one. Clearly also Dr. Robertson does not contemplate that cases of pulmonary tuberculosis with no expectoration shall be notified, since in drawing attention to the facilities obtaining at the University of Birmingham for the bacteriological examination of sputum he observes: "From experience elsewhere I think it advisable that such an examination should be made in most of the cases you intend to notify." The desirability of differentiating between cases in which there is expectoration and those in which there is none ought now to be widely recognised. As regards Birmingham, again, we notice with satisfaction that in setting forth the objects which the health committee has in view, when inviting medical practitioners to notify suitable cases of pulmonary tuberculosis, Dr. Robertson places in the forefront the fact that the information obtained will enable the committee to deal with many of the housing conditions which contribute so largely to the causation of the disease, while the state of the workshops and other trade conditions which influence the spread of the disease will also come under notice. In all this Dr. Robertson is exhibiting, we think, a statesmanlike attitude, for if it is possible to direct some of the enthusiasm in favour of a crusade against tuberculosis, which is now abroad in this country, towards the improvement of the housing conditions of the poorer classes, we venture to predict that pulmonary tuberculosis will decline more rapidly than has been the case in England and Wales for very many years past. And with the decline in this disease, through action set in motion against overcrowding and allied conditions, we should also see a marked improvement in the health and morals of the people in other directions.

But to return to the advantages of some system of modified notification, we gather from the last annual report of Dr. T. Orme Dudfield, the medical officer of health of the borough of Kensington, that he, too, would limit notification to those cases having expectoration, since he expresses his adherence with the view of Professor Koch that notification of consumption is necessary only where, owing to domestic conditions, the affected persons are sources of danger to people about them. This differentiation between "open" and "closed" tuberculosis has long been recognised in France, and the importance of insisting upon it in this country was recently remarked upon by Dr. C. Theodore Williams and Dr. H. T. Bulstrode in their joint report on the Paris Congress on Tuberculosis to the Lord President of the Council.[1] We see, too, by a circular recently issued to the profession in Kensington that Dr. Dudfield contemplates the consent of the patient to the notification, and in the event of the practitioner expressing a wish to that effect no visit will be paid to the house of the patient by a member of the sanitary staff. The circular in question adds that there will be no interference with the patient as the result of notification, either at his home or in connexion with his employment. In these circumstances the medical practitioners of the Royal borough will, we feel sure, heartily coöperate with the medical officer of health. We believe that the success which has attended voluntary notification in Liverpool for several years past is due to the fact that Dr. E. W. Hope, the medical officer of health, has adopted an attitude very much on the same lines as that indicated above. It must be remembered also that in whatever circumstances pulmonary tuberculosis is notified the difficulties of prolonged attention to cases will be great; as Dr. J. Niven of Manchester points out in his annual report for 1905, to sustain household visits month after month, perhaps for years, becomes very trying for all concerned, demanding great tact and management from the visitor as well as judgment on the part of the persons visited. But we

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[1] The Lancet, June 23rd, 1906, p. 1774.

THE LANCET.

LONDON, SATURDAY, AUGUST 11, 1906.

The Neglect of Science.

IF the presidential address delivered before the British Association for the Advancement of Science at York last week did not contain any startling originalities or fresh facts, it was at least an acceptable synopsis of the present position of scientific work and a useful review of the labours of scientific men for the past quarter of a century. Professor E. RAY LANKESTER must have felt that the particular developments of scientific research which he chose to outline were probably well known to the majority of his hearers, so that it was at the risk of trying their patience that he traversed fields of discovery more or less remote from that with which his name is closely and honourably identified. In his sketch of the advances made in the various branches of science he devoted more attention to the wonderful and oft-told story of radium, of the acquisition of new elements, of their decay, of the discovery of helium, and so on, than to such subjects as the progress of our knowledge of cell substance, the discovery of new kinds of animals or plants, the recent developments in geological science, or the thesis that the phagocytes are our arms of defence against infective germs. Professor LANKESTER's point of view in science is, of course, that of the biologist and naturalist, and while he spoke lucidly on subjects with regard to which he repudiated any claim to authority, he referred to the workers in these fields in the spirit, as he said, "of a younger brother full of fraternal pride and sympathy in the glorious achievements of the great experimentalists and discoverers of our day." Professor LANKESTER asked the forbearance of his audience for choosing this course, a course which necessarily deprived his words of originality. It is not difficult to guess the considerations which prompted him to sum up not what has been going on merely in one workshop of science but in them all, yet we cannot but regret his action. That the history of science from beginning to end was, in spite of many difficulties, one clear record of advancement was the outcome of Professor LANKESTER's address; we would rather have received from a teacher of such force and humour a less obvious message.

He was, however, able to found a sound moral lesson upon the acknowledged progress made by science in all directions in recent years. "Where," he asked, "is the corresponding advancement of science in that signification of the word which implies the increase of the influence of science in the life of the community, the increase of the support given to it, and of the desire to aid in its progress, to discover, and then to encourage and reward, those who are specially fitted to increase scientific knowledge, and to bring it to bear so as to promote the welfare of the community?" It is the fact that science is not gaining advancement in regard to public and official consideration and support. It is only too obvious that the claims of science are being ignored by Ministers of State and by others in authority, while the public must be ignorant of the relations of science to the public weal, or popular representatives in Parliament and in office would not so often be wholly destitute of scientific knowledge. The failure of the public and of our leaders of industry to realise the immense practical importance of scientific research is a serious menace to the welfare and prosperity of the country. In many instances the people do not appear to understand the real nature and object of scientific inquiry; they regard it as a kind of hobby pursued by cranks for amusement, or by a glorified class of conjurers who intend to get rich upon patent rights; they divorce it altogether from serious purposes. When the fact is plainly brought home that people are dying by thousands from preventable disease it might be thought that generous support would be given to the organisation of research designed to alleviate the ill. The reverse prevails; neither the work nor the worker receives any large measure of public sympathy, and all endowment is left to a few public spirited individuals. The public never realises that the labourer in the field of science is worthy his hire. Honours, it is true, await the discoverer, but what a number of investigations there must be which are fruitless because of the lack of monetary support! Medical science has a stronger claim perhaps than any other province of research on the generosity of the public, and yet how niggardly is the response to all appeals for funds to carry out the work of combating disease by scientific methods.

Readers of THE LANCET will thoroughly endorse the view of Professor LANKESTER that if the people of this country wish to make an end of infective and other diseases they must take every possible means to discover capable investigators. They must discover them and employ them, and if good result is to be made at all certain it is probable that where a pound or so of public money is now spent it will be necessary to spend thousands We do not forget the munificent gifts to science which have been made on private initiative, and which have been productive of great benefits to humanity; but a less intermittent and a more princely supply of money is needed if the causes of preventive medicine and pathological research are to be organised on a fitting basis Nothing short of the annual allocation of a generous sum of money out of the public purse will serve the purpose, and the public should learn that it is a fundamental truth that on the successful prosecution of scientific research depend after all the health and welfare of the community.

The Notification of Pulmonary Tuberculosis.

THERE is now a very considerable number of towns in England in which pulmonary tuberculosis is notifiable in a voluntary sense, the notifier receiving the same fees as those paid under the Notification Act. In only one town, that of Sheffield, is such notification of pulmonary tuberculosis compulsory, and here the sting is withdrawn from the "compulsion" by the circumstance that the Act rendering the disease notifiable also provides that persons suffering from colleagues. The figures cited by the *Law Journal* and the general conduct of the force in relation to the injuries which so many of its members are called upon to sustain are alone sufficient to afford abundant reason for giving increased protection to the police, not only by an extended system of double patrolling in dangerous districts but also by a greatly increased severity of punishment for any ruffians by whom constables may be injured. The fact that plenty of men are willing to face the dangers of the service forms no reason for subjecting them to unnecessary exposure. It is true that the typical policeman is naturally fearless and that his confidence in his own prowess is enhanced not only by the consideration that the whole force of the law is at his back but also by the training which he has received in the arts of defending himself and of overcoming a criminal who resists him. Still, it is the business of his superiors to reduce the risks of his calling to a minimum. Our contemporary mentions as one of them, "the capture of mad dogs," which, although it was once real and serious enough, has now been happily obviated by the wisdom of the Minister who had sufficient courage and common sense to defy the clamour alike of politicians and of the more misanthropic of cynophilists and to apply medical science for the purpose of banishing rabies and hydrophobia from the kingdom.

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SCHOOL CHILDREN AND HOME LIFE.

THERE is an admirable association in Manchester which provides health lectures for the people and a copy of one of these, delivered by Dr. R. T. Williamson, now lies before us.[1] The object of the lecture is, in Dr. Williamson's own words, "to draw attention to some of the ways in which the health of school children is impaired when school hours are over." The contentions are, of course, mainly written with a view to the requirements of day scholars but in many ways they also concern boarders Thus Dr. Williamson rightly lays stress upon the necessity for there being a sufficient interval allowed between the conclusion of dinner and the commencement of afternoon school. He points out how if this interval is not sufficiently long the scholars may suffer from indigestion, and are certainly sleepy and unable to fix their attention. This state of matters was common in nearly all schools 30 years ago, and to judge from the following amusing parody of a well-known stanza of Alcman is still in existence at Eton.

ALCMAN IN 2.45 SCHOOL.
εὕδουσι μὲν διδάσκαλοι,
χεὕδουσι μαθηταὶ
φιλ' ἀποδειπνίων·
εὕδω δὲ κἠγώ.[2]

Moreover, we have before us the time table of a very well-known and quite first-class school for girls, in which we note—

1.10 to 1.50, *or thereabouts*, dinner.
2.10 to 3.40, lessons.

We do not consider that 20 minutes is a long enough interval between dinner and lessons. Another point upon which Dr. Williamson insists is that there are too many home lessons, or what is the same thing too much work to be done out of school hours. On this matter we agree with him. Some amount of preparation out of schools-hours there must be, but in most elementary schools we believe that the time thus employed has been reduced to a minimum. At many more advanced schools, however, both day and public schools, the time given up to home lessons or preparation out of schools hours is far too long—that is, if it be added to the hours spent in school. Dr. Williamson's paper contains many other points which are most noteworthy by those who have the care of children. Among them he draws attention to the necessity for ventilation, especially of sleeping rooms. Sleeping with the open window is, of course, most desirable, but in many large towns, notably in London, it is difficult to carry out this procedure on account of the various noises, many of which are due to easily preventable causes.

THE CAUSE OF SUDDEN DEATH FOLLOWING THE INJECTION OF HORSE SERUM.

THOUGH the injection of the blood serum of the horse into man usually causes no serious inconvenience, yet in a certain proportion of cases it is followed by urticarial eruptions, pains in the joints, fever, swelling of the lymph nodes, œdema, and albuminuria. This reaction, which appears after an incubation period of from eight to 13 days, has been termed by Pirquet and Schick the "serum disease." In exceptional cases sudden death has occurred. In order to throw some light upon the cause of such accidents an important investigation of the subject has been made by Dr. Milton J. Rosenau and Dr. John F. Anderson in the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service.[1] They have found that ordinarily horse-serum is a comparatively bland and harmless substance when injected into certain animals, but that it is possible to render them so susceptible that an injection of the serum may produce sudden death or severe symptoms. For example, a large quantity of horse serum may be injected subcutaneously or into the peritoneal cavity of a guinea-pig without causing the animal any apparent inconvenience. But if a guinea-pig is injected with a small quantity—e.g., $\frac{1}{250}$th cubic centimetre of the serum—and after the expiration of a certain interval of time is again injected the result will probably be fatal The first injection of horse serum appears to sensitise the animal in such a way as to render it very susceptible to a toxic principle in the serum. It is probable that on the first injection the proteid in the serum develops "antibodies" in the body of the animal and when these unite or react with the serum given at a second injection a toxic action is set up. It is noteworthy that an interval of from 10 to 12 days must elapse between the first and second injections, corresponding suggestively with the period of incubation of the serum disease noted by Pirquet and Schick, guinea-pigs remaining susceptible a very long time, at least 160 days. Guinea-pigs may be sensitised with very small quantities of horse serum; in most cases quantities varying from $\frac{1}{250}$th to $\frac{1}{1000}$th cubic centimetre were used and in one instance one-millionth of a cubic centimetre was sufficient to render a guinea-pig susceptible. It also requires very small quantities of horse serum when given in a second injection to produce poisonous symptoms. One-tenth of a cubic centimetre injected into the peritoneal cavity is sufficient to cause the death of a half-grown guinea-pig, while the same quantity injected subcutaneously is sufficient to produce serious symptoms. The symptoms produced by a second injection are respiratory embarrassment, paralysis, and convulsions, followed by death. They generally come on within ten minutes after the injection and when death results it usually occurs within an hour, frequently in infection of the genital organs is not an uncommon condition in Egypt, mainly, however, confined to the lowest class of women. Extensive vesico-vaginal and other fistulæ are frequent as the result of neglected labours. Ruptures of the perineum, on the other hand, are not common, for labours are often extremely easy, though on account of neglect in abnormal presentations or of contraction of the pelvis, the reverse may occur, in which cases very extensive injuries to the soft parts are met with. Ovarian cysts and fibroid tumours of the uterus usually attain a large size before coming under observation and the operations for their removal are correspondingly complicated and difficult. In the fatal case of ovariotomy there were masses of tubercle in the lungs and similar masses round the pancreas and liver. Of the two fatal cases of hysterectomy one died from a perforated duodenal ulcer, and in the other the bladder was accidentally injured during the operation, owing to the fact that it was much displaced by the tumour. The report indicates that good work is being done in this hospital and the staff are to be congratulated on their results.

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[1] On the Home Life of School Children in Relation to Education and Health. Price 1d. Manchester: Sherratt and Hughes.

[2] Signa Severa, by E. A. K., Eton College. Spottiswoode and Co., Limited.

[1] Bulletin No. 29, Hygienic Laboratory of the United States Public Health and Marine Hospital Service, Washington, 1906, pp. 95.

MEDICAL MEN AND INDICTABLE OFFENCES.

THE Under Secretary of State for the Home Departmen has forwarded to us the following circular which has been addressed to all chief constables:—

> Whitehall, August 6th, 1906.
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> SIR,—I am directed by the Secretary of State to inform you that the General Medical Council have asked to be furnished with notice of any medical or dental practitioner convicted of an indictable offence. This is done by the Prison Governors when the prisoner is committed to prison; in London, when he is fined, the Metropolitan police report the conviction, and the Secretary of State will be glad if you will give instructions that an intimation of any case coming to the knowledge of members of your force shall be sent to the General Registrar, 299, Oxford-street, London, whenever a fine is imposed on the defendant.
>
> I am, Sir, your obedient servant,
>
> The Chief Constables. M. D. CHALMERS

The keeping the roll of the medical profession free from undesirable characters is part of the duty of the General Medical Council, and it is necessary for that body to take active steps to obtain the necessary information. We do not imply that a conviction for every indictable offence renders a medical man unfit to pursue his profession, yet it is as well that such convictions should be registered by the General Medical Council.

THE HYPODERMIC INJECTION OF PREPARATIONS OF IRON.

IT is universally admitted that salts of iron, in virtue of their astringent and constipating properties, are sometimes badly borne by those persons for whom their use is most directly indicated. The large number of preparations of iron, both official and unofficial, organic and inorganic, in common use by various medical practitioners, and the diverse directions given by different authorities for the treatment of chlorosis and other forms of anæmia, afford an indication of the difficulties encountered. At one time it was recommended to prepare the patient suffering from anæmia and gastric disturbance, to whom iron was to be administered, by a preliminary course of purgatives and stomachics, but it is now more usual to start at once by giving preparations of iron. Later, much was hoped for from the introduction of organic iron compounds, and large numbers of such substances were extensively tried, but pharmacological experiments and clinical experience have agreed in demonstrating that there is little, if any, advantage in their use; indeed, Stockman regards inorganic iron compounds as more effective than organic in the treatment of anæmia, and not a few practitioners of great experience prefer the more astringent preparations to the milder and more bland. Now that the absorption of compounds of iron by the mucous membrane of the upper part of the small intestine has been definitely established and its excretion by the large intestine and the kidney has been traced, the view of Bunge as to the use of iron salts administered by the mouth in chlorosis—that they acted by sparing the hæmatogens or organic iron compounds of the food material from the action of the sulphuretted hydrogen in the bowel—must be regarded as controverted. In view, therefore, of the useful results which have been obtained by the hypodermic administration of other metals, such as mercury and arsenic, it becomes important to investigate whether iron may not with advantage be given by this means. It seems to have been employed in this manner by Rosenthal as long ago as 1872, and since that time various preparations of iron have been used hypodermically. The chief substances which have been employed for this purpose are dialysed iron, citrate of iron, citrate of iron and sodium, citrate of iron and ammonium, and various albuminates and peptonates, but most authorities regard the results obtained as hardly commensurate with the difficulties encountered. The injections are given into the thick tissues of the back and sometimes cause considerable pain unless the reaction is neutral. The solutions should always be freshly prepared and, of course, must be sterile. It should likewise be borne in mind that iron salts are toxic, and that smaller doses should be given hypodermically than by the mouth or rectum. In animals V. H. Mayers and F. Williams[1] observed vomiting, purging, a fall of blood pressure, coma, and death as a result of the action of toxic doses of iron and sodium tartrate, while Kobert and his pupils found that after injection of one milligramme of iron and sodium citrate per seven kilogrammes of weight in man 40 per cent. appeared unaltered in the urine. The possibility of renal irritation as a result of large doses must obviously be kept in mind. For purposes of injection, therefore, small doses only should be given, about 10 or 12 minims of a solution equivalent to from a quarter to half a grain of metallic iron. Da Costa found that a 20 per cent. solution of ferrous manganous citrate could be injected without pain and gave satisfactory results. He recommended 15 minims of the solution as a dose—that is, three grains of the salt. Other salts which have occasionally been tried are the lactate, salicylate, and cacodylate, but on the whole the results, as recorded, are disappointing of iron given by this means and a thoroughly satisfactory substance for injection has yet to be found. Chalboub gave the chloropeptonate of iron by the rectum, the solution being prepared by the addition of the perchloride of iron to peptone. On the whole, it seems that even with cases of irritability of the stomach the best results are obtained by the administration of preparations of iron by the mouth, and among the many substances at present in use, as a rule some one will be found to be effective. Professor T. Clifford Allbutt[2] states that he has found an old-fashioned French solution of malate of iron tolerated by patients "with queasy stomachs" when other ferruginous drugs are badly borne.

INTERNATIONAL CONGRESS FOR ASSISTANCE OF THE INSANE.

THIS Congress will be held at Milan from Sept. 26th to 30th. The meetings will be held in the Palais de l'Université Bocconi, Piazza del Statuto. In addition to the subjects for discussion proposed by the organising committee, of which Professor Tamburini of Reggio Emilia is president and Professor Ferrari of Bertalia, Bologna, is general secretary, the Congress will also discuss a proposition made by Dr. Frank of Zürich, the object of which is to found an international institute for the purpose of studying and combating the causes of mental diseases. The general subjects proposed for discussion by the were covered with tartar; the gums were red and swollen and there was a little pus in the pockets between the gums and the teeth. On the left pillar of the fauces was an ulcer with a greyish coating. On the internal surfaces of the cheeks at the level of the crowns of the teeth were two or three ulcers. There were no gastro-intestinal symptoms and no albuminuria. Mercurial stomatitis was suspected but the patient denied that she had taken mercury. Frequent cleansing of the mouth by the application of oxygenated water and the administration of potassium chlorate were ordered. The odour disappeared, the salivation almost ceased, and the ulcers began to heal. The patient left hospital on April 1st but returned on the 12th with another attack of stomatitis more intense than the previous one. She stated that she had not neglected to wash her mouth daily. The whole body was then minutely examined. In the subcutaneous fat of the right buttock a lump of the size of a hazel nut was discovered and in the left buttock a smaller one. The patient on being questioned stated that she had received an injection in the left buttock in March, 1905, and one in the right buttock in October. The urine was analysed and was found to contain a trace of mercury. The lump in the right buttock was excised and the stomatitis radidly improved. The lump was entirely subcutaneous and on section showed a greyish and yellowish surface hollowed out into little cavities. Microscopic examination showed that the lump was composed of fibrous tissue and that the cavities contained fat, crystals of calomel, and globules of metallic mercury. The delay in the appearance of the symptoms of mercurial poisoning is noteworthy.

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[1] Archiv für Experimentelle Pathologie und Pharmacologie, Band xiii, p. 76.

[2] System of Medicine, vol v.

A TELEGRAM from the Governor of Hong-Kong, received at the Colonial Office on July 30th, states that for the week ending July 28th there were 5 cases of plague and 6 deaths from the disease. As regards the Mauritius a telegram from the Acting Governor received at the Colonial Office on July 31st states that for the week ending July 26th there was only 1 case of plague reported and that ended fatally.

THE Central Council of the British Medical Association has accepted the invitation of the Western branch to hold next year's annual meeting at Exeter and Dr. H. Davy has been nominated as president-elect. It is more than half a century since the British Medical Association visited Exeter.

AN Order of the Privy Council has been received by the Central Midwives Board continuing the present rules of the Board until Feb. 12th, 1907.

ABORTION FELONIOUSLY INDUCED BY DIACHYLON.

THE LANCET of July 28th, p. 248, contained a report of the trial at the recent assizes at Nottingham of a woman named Wardle charged with selling pills to pregnant women. Wardle was convicted and sentenced to 18 months' imprisonment with hard labour, the judge when passing sentence dwelling upon the serious nature of the offence, and pointing out to the prisoner that it was in his power to condemn her to penal servitude for life.

The case is of importance owing to the manner in which the prisoner's crimes were brought to the notice of the police authorities, and also on account of the nature of the drug used and of the manner in which it assisted in securing the conviction. Under the rules framed by the Central Midwives Board in accordance with the powers given to it by the Midwives Act, "In all cases of abortion a midwife must decline to attend alone and must advise that a registered medical practitioner be sent for," and whenever this is done it has to be noted in the midwife's record, a copy of which is to be forwarded to the local supervising authority (Rules 17 and 19). Further, "In all cases where a registered medical practitioner is not in attendance the midwife shall as soon as possible after the occurrence of a still-birth notify the same to the local supervising authority" (Rule 18). As certified midwives are liable to removal from the roll if they do not obey the rules cases of abortion and still-birth are likely to come under the observation of local authorities and if numerous should secure attention, as, in fact, happened at Nottingham. Uncertified midwives may still attend confinements for hire, so long as they do not hold themselves out to be certified, and they will be able to do so until April 1st, 1907, but after that date no doubt the notification referred to will constitute a more certain safeguard to the public than now. In the recent instance at Nottingham the pills used by the prisoner were roughly made up, varying from one and a half grains to five grains, and those analysed were found to be compounded of diachylon in proportions varying from 50 to 70 per cent., of aloes, and of a coating of boric acid. The women to whom they were supplied were told to take a dose of Epsom salts, fasting, in the morning, followed by four of the pills and by four pills again at night. In these circumstances it is not surprising that many of the women who had recourse to Mrs. Wardle in pregnancy, or supposed pregnancy, developed symptoms of lead poisoning and became very ill, while the frequent occurrence of lead poisoning, accompanied by abortion, attracted the notice of Dr. P. Boobbyer, the medical officer of health of Nottingham. These cases, moreover, were of noticeable frequency in Bulwell, an outlying district of the town, where it was found that a large trade was done in "Mrs. Seagrave's Pills," Seagrave being a trade alias of the prisoner Wardle. Not only were cases of lead poisoning among women of the child-bearing age occurring in extraordinary numbers, but no less than ten in which abortion had also taken place were cited to the local authority in order to prove to it the desirability of taking action.

When once it had been decided that the police should make inquiries the completion of the chain of evidence, by obtaining pills from the abortionist for analysis, by arresting her and seizing a large quantity of them at her house, and by obtaining the evidence of her victims, was not difficult; but the important feature of the case is the manner in which the medical officer of health was enabled to intervene in the interest of the public health confided to his care, owing to the statistics supplied to him under the Midwives Act. These statistics should draw attention to any systematic procuring of abortion taking place in other localities and the fact of lead having been used with such dangerous results at Nottingham may also afford an additional clue elsewhere. This use of the drug, however, either generally or in the form of diachylon, is not common if we may rely on our experience in the analysis of would-be abortifacients obtained in our investigation held in 1898.[1] We must not forget to call attention to the newspaper advertisements, less common now than formerly, but by no means stamped out, by which the quack establishes relations with his victims and which may also serve as a clue to those who seek to detect the criminal. The prosecution of a few newspapers on the ground of their complicity would do a great deal towards diminishing the revenues of the advertising abortionist, although it might not altogether do away with his trade.

One or two points raised in the defence of Wardle at Nottingham may be noted for the guidance of those who may have to meet similar suggestions upon other occasions. A number of witnesses, male and female, were called on her behalf, who swore that they had taken her pills with beneficial results for such ailments as "bad backs, internal pains, and anæmia." The general answer to evidence of this kind is, of course, that it in no way shows that the pills were not also sold with a view to procuring abortion, when they were asked for by pregnant women who desired them for that purpose. The evidence of the defendant herself upon this subject, who swore that she only sold them as "female pills" to be taken in cases of irregular or suppressed menstruation, was a matter for the jury to consider, and in this case it taxed their credulity too far.

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[1] Quacks and Abortion, a series of articles on this subject commencing in THE LANCET of Dec. 10th, 1898, p. 1570.

ess than half an hour, and sometimes within a few minutes. The poisonous principle in horse serum appears to act upon the respiratory centres; the heart continues to beat long after respiration ceases. The toxic action bears no relation to diphtheria and the poison is not toxone. Though guinea-pigs cannot be rendered susceptible by previous injections with bacillus diphtheriæ, or by previous injections with diphtheria toxin, it appears that a mixture of diphtheria toxin and horse serum forms a more potent sensitising agent than horse serum alone. Dr. Rosenau and Dr. Anderson lay emphasis on the fact that diphtheria antitoxin is in itself harmless and plays no part in this poisonous action. The poisonous principle in horse serum is not affected by subjection to a temperature of 60° C. for six hours but it is destroyed at 100° C. in 15 minutes. It is filtrable through porcelain, is not injured by drying, and cannot be separated by precipitation with ammonium sulphate and subsequent dialysis. Serums eight years old are as toxic as those freshly prepared, and their poisonous action is not affected by exposure of the serum to x rays. It is probable that small quantities of horse serum are more powerful than large quantities in inducing susceptibility; in the latter case the guinea-pigs are probably partly immunised at the same time owing to slow absorption of the serum. An active immunity against the toxic principle may readily be established by repeated injections of horse serum at short intervals but up to the present it has not been found possible to transfer this immunity in the blood serum or body juices to another guinea-pig. This investigation has also revealed the remarkable fact that guinea-pigs may be rendered susceptible to the toxic action of horse serum by feeding them with horse serum or horse meat. This opens up an interesting question as to whether sensitive guinea-pigs may also be poisoned by feeding them with the same serum after a proper interval of time. It is suggested that if man can be sensitised in a similar way by eating certain proteid substances some light may be thrown upon those interesting and obscure cases in which the eating of fish and other articles of diet habitually causes sudden, and sometimes serious, symptoms. It is interesting also to note that the susceptibility to the toxic action of horse serum is transmitted by heredity from a mother guinea-pig to its young, a fact which may throw some light upon the well-known hereditary tendency to tuberculosis in children born of a tuberculous parent. Dr. Rosenau and Dr. Anderson allow the possibility that man may not be sensitised in the same way as guinea-pigs. Man reacts to the first injection of horse serum after from eight to 13 days. Guinea-pigs show no reaction as a result of a first injection; both man and guinea-pigs react to a second injection. But the reactions in man and in guinea-pigs differ both in severity and in kind, so that the relation of the foregoing observations upon the guinea-pig to man must await further investigation.[1]

MATERNAL IGNORANCE IN THE MANUFACTURING DISTRICTS.

THE ignorance of the working-class women of the manufacturing districts as to the feeding and care of their infants is almost incredible and is a lasting disgrace to those who have had the planning of their education. Teachers, knowing none too much of such matters themselves, have had to steer by "the Code," even if they wished to impart some useful knowledge, and one of the chief causes of the murderous infantile death rate has thus been perpetuated. "The other week it came out at an inquest at Gorton," writes a local and valued correspondent, "that the mother had fed her 14 months old child only three times a day, and not at all in the night, with a few tablespoonfuls of milk and barley water. Dr. J. J. O'Shea said that the cause of death was exhaustion due to insufficient feeding, which in other words means death from starvation. The jury thought the parents should be censured and the coroner accordingly administered a mild reproof." The parents in these cases should be made to feel their responsibility in some effectual way. Many of them might do better if they would and they should be taught that neglect and even ignorance of their duty are not only wrong but punishable. Our correspondent shows that infant life is held cheaply in Manchester and its neighbourhood, and no doubt familiarity with a high infantile mortality tends to blunt the feelings. It is cheering, however, to note that more attention is being paid to this subject. The Mayor of Colne has just set an example that many other places and municipal authorities would do well to follow. He will defray the entire expense of a trained nurse, as to salary, uniform, and board, for the term of five years, the duty of the nurse being primarily attention to infants. More common sense in education and a higher moral tone among the mothers would soon reduce the death-rate.

THE MEDICO-LEGAL SOCIETY AND DEATH CERTIFICATION.

AT a recent extraordinary meeting of the Medico-Legal Society, Mr. Troutbeck, the treasurer, being in the chair, the following resolutions were passed unanimously on the motion of Sir William J. Collins, M.P., seconded by Mr. R. Henslowe Wellington:—

1. That the present methods (under Coroners and Deaths' Registration Acts) of ascertaining the fact and cause of death are imperfect, constitute grave public dangers, and call for early legislation, with a view to the amelioration of the law.

2 That a deputation from the Medico-Legal Society wait upon the Lord Chancellor in order to represent to him this view of the society, the deputation to consist of the officers, the ex-president, and the Council. That the learned President (Mr. Justice Walton) be requested to approach the Lord Chancellor as to the reception of the deputation.

3 That a copy of these resolutions be transmitted to the public control committee of the London County Council.

These resolutions were the outcome of opinions expressed at a previous meeting of the society, when there was a discussion on the Methods of Ascertaining the Fact and Cause of Death. A committee was appointed for the purpose of considering certain of the proposals which had been made during the discussion and upon the report of this committee the above resolutions were passed.

STOMATITIS DUE TO A MERCURIAL INJECTION GIVEN FIVE MONTHS PREVIOUSLY.

THE dangers of mercurial injections do not seem to be appreciated sufficiently. When an insoluble preparation is used a toxic quantity of mercury is deposited in the body which usually is slowly absorbed, producing only therapeutic results; but sometimes rapid absorption takes place and serious and even fatal results are the consequence. Of the cause of this rapid absorption little is known and untoward consequences are therefore impossible to foretell. We have recently referred to a fatal case of injection of "grey oil," and also to one in which serious symptoms were checked in the only possible way, by excision of the mercurial deposit.[1] At a meeting of the Société Médicale des Hôpitaux of Paris on June 22nd M. P. Menetrier and M. Bouchard reported a case in which this operation was necessary in a case of stomatitis due to a mercurial injection given five months previously. A woman, aged 38 years, was admitted into hospital on March 22nd, 1906. On admission the breath was fœtid and there was abundant salivation, and mastication was painful. The tongue was furred and swollen; the teeth

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[1] The authors state in a *postscript* that a paper by R. Otto, entitled "Das Theobald Smithsche Phänomen der Serum-Ueberempfindlichkeit," reprinted from Leuthold-Gedenkschrift, Band i., which came to their notice after the galley proof of their paper had left their hands, deals with some of the same problems and contains many results in harmony with their own.

[1] THE LANCET, Feb. 17th, 1906, p. 465.

SPECIAL HOSPITALS.

CHEST HOSPITALS.

	£	s.	d.
City of London Hospital for Diseases of the Chest, Victoria Park	900	0	0
Hospital for Consumption, Brompton	2233	2	6
Mount Vernon Consumption Hospital, Hampstead	909	7	6
Royal Hospital for Diseases of the Chest, City-road	553	2	6
Royal National Hospital for Consumption (Ventnor)	337	10	0

CHILDREN'S HOSPITALS.

Alexandra Hospital for Hip Disease, W.C.	384	7	6
Banstead Surgical Home	23	8	9
Barnet Home Hospital	43	2	6
Belgrave Hospital for Children, S.W.	135	16	9
Cheyne Hospital for Incurable Children, S.W.	140	12	6
East London Hospital for Children, Shadwell, E.	750	0	0
Evelina Hospital for Sick Children, Southwark, S.E.	182	16	3
Home for Incurable Children, Hampstead	79	13	9
Home for Sick Children, Sydenham, S.E.	117	3	9
Hospital for Sick Children, Great Ormond-street, W.C.	1040	12	6
Kensington, for Children, and Dispensary	84	7	6
North Eastern Hospital for Children, Hackney-road, N.E.	562	10	0
Paddington Green Hospital for Children, W.	157	10	0
St. Mary's Hospital, Plaistow, E.	252	10	0
St. Monica's Hospital, Brondesbury, N.W.	75	0	0
Victoria Hospital for Children, King's-road, Chelsea, S.W.	562	10	0
Victoria Home, Margate	37	10	0
Hospital for Hip Disease, Sevenoaks	42	3	9

LYING-IN HOSPITALS.

British Lying-in Hospital, Endell-street, W.C.	70	6	3
City of London Lying-in Hospital, City-road, E.C.	200	0	0
Clapham Maternity Hospital	22	2	6
East-End Mothers' Home	75	0	0
General Lying-in Hospital, Lambeth, S.E.	23	2	6
Queen Charlotte's Lying-in Hospital, Marylebone-road, W.	453	15	0

HOSPITALS FOR WOMEN.

Chelsea Hospital for Women, S.W.	231	5	0
Hospital for Women, Soho-square, W.	406	2	6
Grosvenor Hospital for Women and Children, Vincent-square, S.W.	159	7	6
New Hospital for Women, Euston-road, W.C.	225	0	0
Royal Waterloo Hospital for Children and Women, Lambeth, S.E.	45	17	6
Samaritan Free Hospital, Marylebone-road, W.	421	17	6

OTHER SPECIAL HOSPITALS.

Middlesex Hospital, Cancer Wing	283	8	9
London Fever Hospital, Islington, N.	187	10	0
Gordon Hospital for Fistula, Vauxhall Bridge-road, S.W.	14	1	3
St. Mark's Hospital for Fistula, City-road, E.C.	243	8	9
National Hospital for the Diseases of the Heart, Soho-square, W.	154	13	9
Female Lock Hospital, Harrow road, W.	255	2	6
Hospital for Epilepsy, Paralysis, and other Diseases of the Nervous System, Maida-vale, W.	125	11	3
National Hospital for the Paralysed and Epileptic, W.C.	1073	2	6
West End Hospital for Diseases of the Nervous System	290	12	6
Central London Ophthalmic Hospital, Gray's Inn-road, W.C.	159	7	6
Royal Eye Hospital, St. George's-circus, S.E.	281	3	9
Royal London Ophthalmic Hospital, City-road, E.C.	1031	5	0
Royal Westminster Ophthalmic Hospital, Charing Cross, W.C.	159	7	6
Western Ophthalmic Hospital, Marylebone-road, W.	75	0	0
Royal National Orthopædic Hospital, Great Portland-street, W.	150	0	0
Royal Sea Bathing Hospital, Margate	271	17	6
St. John's Hospital for Diseases of the Skin	16	15	0
Western Skin Hospital, Great Portland-street, W.	4	13	9
St. Peter's Hospital for Stone, Covent Garden	70	6	3
Central London Throat and Ear Hospital, Gray's Inn road, W.C.	43	2	6
Hospital for Diseases of the Throat, Golden-square, W.	28	2	6
London Throat Hospital, Great Portland-street, W.	23	8	9
Royal Ear Hospital, Frith-street, W.	27	3	9
Royal Dental Hospital of London, W.C.	293	12	6
National Dental Hospital, 149, Great Portland-street, W.	15	0	0

CONVALESCENT HOSPITALS.

Metropolitan Convalescent Institution, Walton and Broadstairs	625	2	6
Ditto Ditto Bexhill	412	10	0
All Saints' Convalescent Hospital, Eastbourne	375	0	0
All Saints' Convalescent Home, St. Leonards-on-Sea	23	8	9
Ascot Priory Convalescent Home	70	6	3
Brentwood Convalescent Home for Children	9	7	6
Charing Cross Hospital Convalescent Home, Limpsfield	70	6	3
Chelsea Hospital for Women Convalescent Home, St. Leonard's	42	3	9
Deptford Medical Mission Convalescent Home, Bexhill	18	15	0
Fairlight Convalescent Home, Hastings	23	8	9
Friendly Societies Convalescent Home, Dover	84	7	6
Mrs. Gladstone Convalescent Home, Mitcham	89	1	3
Hahnemann Convalescent Home, Bournemouth	23	2	6
Hanwell Convalescent Home	15	13	9
Hendon, Osulston Home	53	6	9
Herbert Convalescent Home, Bournemouth	23	2	6
Herne Bay Baldwin-Brown Convalescent Home	56	5	0
Homœopathic Hospital Convalescent Home, Eastbourne	23	8	9
Hemel Hempstead Convalescent Home	43	2	6
Incorporated Morley and Bevan Convalescent Home	231	5	0
Mrs. Kitto's Convalescent Home, Reigate	45	17	6
London Hospital Convalescent Home, Tankerton	67	10	0
Mary Wardell Convalescent Home for Scarlet Fever	56	5	0
Police Seaside Home, Brighton	45	17	6
St. Andrew's Convalescent Home, Clewer	93	15	0
St. Andrew's Convalescent Home, Folkestone	163	15	0
St. John's Home for Convalescent and Crippled Children, Brighton	32	15	3
St. Joseph's Convalescent Home, Bournemouth	55	5	0
St. Leonards-on-Sea Convalescent Home for Poor Children	95	12	6
St. Mary's Convalescent Home, Shortlands	23	12	6
St. Michael's Convalescent Home, Westgate-on-Sea	32	16	3
Seaside Convalescent Hospital, Seaford	93	15	0

COTTAGE HOSPITALS.

Acton Cottage Hospital	56	5	0
Beckenham Cottage Hospital	75	0	0
Billingsgate Medical Mission Hospital	45	17	6
Blackheath and Charlton Cottage Hospital	79	13	9
Bromley, Kent, Cottage Hospital	117	3	9
Bushey Heath Cottage Hospital	34	13	9
Canning Town Cottage Hospital	56	5	0
Chislehurst, Sidcup, and Cray Valley Cottage Hospital	60	16	9
Col ash Cottage Hospital	20	12	6
East Ham Cottage Hospital	72	3	9
Eltham Cottage Hospital	45	0	0
Enfield Cottage Hospital	65	12	6
Epsom and Ewell Cottage Hospital	50	12	6
Hounslow Cottage Hospital	42	3	9
Dartford Cottage Hospital	84	7	6
Kingston, Victoria Hospital	62	15	3
Mildmay Cottage Hospital	23	8	9
Reigate and Redhill Cottage Hospital	103	2	6
Sidcup Cottage Hospital	32	16	3
Tilbury (Passmore Edwards) Cottage Hospital	46	17	6
Willesden Cottage Hospital	103	2	6
Wimbledon Cottage Hospital	45	17	6
Wimbledon South Cottage Hospital	46	17	6
Woolwich and Plumstead Cottage Hospital	51	11	3

INSTITUTIONS.

Bolingbroke Hospital	271	17	6
Hospital for Invalid Gentlewomen, Harley-street	93	15	0
St. Saviour's Hospital and Nursing Home	94	13	9
National Sanatorium for Consumption, Bournemouth	93	15	0
Invalid Asylum, Stoke Newington	37	10	0
Firs Home, Bournemouth	28	2	6
St. Catherine's Home, Ventnor	23	8	9
Friedenheim Hospital for the Dying	500	0	0
Oxygen Home, Fitzroy-square	37	10	0
Santa Claus Home, Highgate	59	1	3
Free Home for Dying, Clapham	121	17	6
St. Luke's House, Pembridge-square, W.	112	10	0
Royal Mineral Water Hospital, Bath	45	17	6
Eversfield, St. Leonards	Nil.		
St. Winifred's Home, Holloway	56	5	0

DISPENSARIES.

Battersea Provident Dispensary	112	10	0
Blackfriars Provident Dispensary	18	15	0
Bloomsbury Provident Dispensary	14	1	3
Brixton, &c., Dispensary	49	13	9
Brompton Provident Dispensary	18	15	0
Buxton Street Dispensary	15	15	0
Camberwell Provident Dispensary	77	16	3
Camden Town Provident Dispensary	15	0	0
Chelsea, Brompton, and Belgrave Dispensary	44	1	3
Chelsea Provident Dispensary	13	2	6
Childs Hill Provident Dispensary	15	18	9
City Dispensary	51	11	3
City of London and East London Dispensary	9	7	6
Clapham General and Provident Dispensary	22	10	0
Deptford Medical Mission	23	8	9
Eastern Dispensary	34	13	9
East Dulwich Provident Dispensary	38	8	9
Farringdon General Dispensary	42	3	9
Finsbury Dispensary	45	17	6
Forest Hill Provident Dispensary	37	10	0
Greenwich Provident Dispensary	51	17	6
Hackney Provident Dispensary	16	17	6
Hampstead Provident Dispensary	55	2	6
Holloway and North Islington Dispensary	42	3	9
Islington Dispensary	55	5	0
Islington Medical Mission	38	8	9
Kensal Town Provident Dispensary	15	18	9
Kennington and Vauxhall Provident Dispensary	13	2	6
Kentish Town Medical Mission	19	13	9
Kilburn, Maida Vale, and St. John's Wood Dispensary	38	8	9
Kilburn Provident Medical Institution	46	17	6
London Dispensary, Spitalfields	14	1	3
London Medical Mission, Endell street	116	5	0
Margaret-street, for Consumption	21	11	3
Metropolitan Dispensary	58	2	6
Mildmay Medical Mission Dispensary	23	8	9
Notting Hill Provident Dispensary	13	2	6
Paddington Provident Dispensary	31	17	6
Public Dispensary, Clare Market, W.C.	35	12	6
Queen Adelaide's Dispensary	28	1	3
Royal General Dispensary	23	8	9
Royal Pimlico Provident Dispensary	41	5	0
Royal South London Dispensary	45	17	6
St. George's and St. James's Dispensary	45	17	6
St. George's, Hanover-square, Provident Dispensary	23	2	6
St. John's Wood Provident Dispensary	45	18	9
St. Marylebone General Dispensary	47	16	3
St. Pancras and Northern Dispensary	30	0	0
St. Pancras Medical Mission	19	13	9
South Lambeth, Stockwell, and North Brixton Dispensary	35	11	3
Stamford Hill, Stoke Newington Dispensary	55	5	0
Tower Hamlets Dispensary	43	2	6
Walworth Provident Dispensary	15	0	0
Wandsworth Common Provident Dispensary	14	1	3
Westbourne Provident Dispensary	15	17	6

With regard to the use of lead, however, the prosecution, with the judge's approval, exercised their right to call rebutting evidence, and Dr. Boobbyer went into the witness-box to point out that as anæmia was one of the earliest and most constant symptoms of lead poisoning it was inconceivable that lead administered to an already anæmic patient should fail to make him or her worse instead of better, while absence of menstruation is due practically either to pregnancy or anæmia.

Upon other points also arising out of the use of diachylon it was possible to supply answers to the defence. In her evidence Wardle declared that she only employed it in order to make her pills hold together, and that she knew nothing of its specific action or that it contained poison. The reply to this, upon which we note the judge laid considerable stress in his summing up, was that as Epsom salts are an acknowledged eliminative of lead, it was strange that the prisoner should have recommended them if she were in complete ignorance that diachylon contained lead.

The only other point to which we need call attention is to the fact that the jury in finding the prisoner guilty recommended her to mercy. The ground upon which they did this is not stated in the report before us, but it will seem to many to be indicative of a semi sympathetic attitude towards this class of crime which is undoubtedly to be found in many districts. This attitude, of which those practising at the bar in criminal courts are well aware, often renders convictions difficult to obtain, and makes it desirable that the evidence brought forward should be as irresistibly conclusive as possible. It accounts to some extent for the supineness of local and other authorities who allow a noxious and criminal trade to be carried on so openly that it can be advertised in the public press with impunity.

We have referred above to the part played in the recent prosecution by the medical officer of health, and by the reports furnished under the Midwives Act. To this we would add that although we have no desire to see medical practitioners playing the part of detectives, we see no reason why their cordial coöperation should be withheld where the detection and prevention of the crime of abortion are concerned. All practitioners are as deeply concerned in the protection of the public unofficially as is the medical officer of health by virtue of his position, and the felony in question is one the commission of which by others lays them open to peculiar danger. The position of the medical practitioner who is called in to attend a case in which he suspects its commission is an anxious one. He must respect absolutely the confidences of his patient, yet he knows that, if his suspicions are well grounded, the preservation of silence may at any time lay him open to the charge of being himself the felon or, at any rate, of complicity should the matter come to light. The guilty ones will only be too glad to see him accused or to set the accusation on foot if thereby they can save their own skins. He must be guided as to the course he may take by the exercise of all discretion and by the circumstances of the particular case which concerns him; but we cannot readily assent to the suggestion that a medical man's professional obligations may involve his shielding, at the risk of his own liberty or of his honourable reputation, a criminal who is dangerous to the public. But to separate the criminality of the abortionist from that of the willing subject must be very difficult, while the subject will stand in the sacred relation of patient towards the medical man.

METROPOLITAN HOSPITAL SUNDAY FUND.

A MEETING of this Fund was held on August 2nd at the Mansion House, Sir HORATIO DAVIES, in the absence of the Lord Mayor, presiding. Among those present were Sir Stephen Mackenzie, Sir E Durning Lawrence, Sir William S. Church, Bart., Sir John C. Bell, Sir Savile Crossley, Bart., the Hon. Sydney Holland, Dr. J. G. Glover, and Mr. A. Willett. Letters of regret were read from Archdeacon Sinclair, the Chief Rabbi, the Rev. C. H. Grundy, Mr. T. Wakley, senr., and others.

The chief business of the meeting was to approve of the report of the distribution committee and to recommend that the awards should be paid as soon as possible

Sir DURNING LAWRENCE, chairman of the Royal Waterloo Hospital for Children, called attention to the small sum awarded to his hospital and hoped that the committee would see its way to enlarge the grant.

Sir WILLIAM CHURCH pointed out that the hospital authorities had held a bazaar in aid of the hospital just before Hospital Sunday which realised £8000. This contravened a rule of the constitution of the Hospital Sunday Fund.

Sir DURNING LAWRENCE denied that the date of the bazaar had been fixed by the hospital. The bazaar had been opened by Royalty and the hospital authorities had no control over the date.

Dr. GLOVER called attention to the large number of out-patients treated at the London Hospital. Many of these, he felt sure, must be able to provide medical attendance for themselves. He also referred to the withholding of the grant to Charing Cross Hospital. It was a very serious matter for the London poor.

Mr. HOLLAND denied that there was any abuse of the out-patient department at the London Hospital and pointed out that there was only one other hospital for adults in the East of London. The only way to reduce the number of out-patients at the London Hospital would be to build more hospitals.

Eventually the report was adopted.

The annual report of the committee of distribution to the council of the Metropolitan Hospital Sunday Fund, 1906, stated that the committee of distribution desired to record with regret the resignation of Sir Felix Schuster, Bart., who is now unable to give the necessary time to the work of the Fund. Mr. George Herring had again most liberally offered to add one-fourth to the amount collected in places of worship, as well as to the City collection. The amount of the Fund to the present time was £56,303, to which had to be added the sum of £3000, a portion of the legacy of £10,000 left to the Fund by the late Mr. Herbert Lloyd, making a total of £59,303. This year 250 institutions had made applications for grants from the Fund, being two more than in 1905, in addition to the nursing associations. Two hospitals which applied for grants were considered ineligible. The committee, though fully realising the excellent work carried on by the Cancer Hospital, had not made an award this year, the hospital not being in want of funds at the present time. The committee recommended the distribution of £57,510 to 161 hospitals and institutions, 60 dispensaries, and 26 nursing associations. The committee recommended that the award to *Charing Cross Hospital* should be paid when it was proved to its satisfaction that the result of the special appeal to be made next autumn would enable the committee to carry on the work of the hospital. The committee recommended that the grant made last year should be paid to the City Orthopædic Hospital without waiting for the amalgamation to be carried through. 5 per cent. of the total sum collected was set apart to purchase surgical appliances.

The following are the particulars of the awards recommended by the committee of distribution :—

GENERAL HOSPITALS.

	£	s.	d.
Charing Cross Hospital	1204	13	9
French Hospital	356	5	0
German Hospital	690	12	6
Great Northern Central Hospital	1069	7	6
Guy's Hospital	1687	10	0
Hampstead General Hospital	234	7	6
Italian Hospital	206	5	0
King's College Hospital	1339	7	6
London Hospital	5437	10	0
London Homœopathic Hospital	478	2	6
Phillips' Memorial Homœopathic Hospital	*33*	*15*	*0*
London Temperance Hospital	721	17	6
Metropolitan Hospital	1050	0	0
Mildmay Hospital	281	5	0
Miller Hospital and Royal Kent Dispensary	257	16	3
North-West London Hospital	421	17	6
Poplar Hospital	625	0	0
Kensington General Hospital	159	7	6
Royal Free Hospital	1134	7	6
St George's Hospital	1837	10	0
SS. John and Elizabeth Hospital	309	7	6
St. John's Hospital, Lewisham	145	6	3
St. Mary's Hospital	2343	15	0
Seamen's Hospital Society	1378	2	6
The Middlesex Hospital and Convalescent Home	2100	0	0
Tottenham Hospital	643	15	0
University College Hospital	1706	5	0
Walthamstow, &c., Hospital	135	18	9
West Ham Hospital	543	15	0
West London Hospital	1078	2	6
Westminster Hospital	1500	0	0

the law" as every man by law is assumed to be, we may int out that the liability of the medical man towards patient, upon which actions are brought such as that Crier v. Hope and Currie, commented upon in THE LANCET July 28th, is based upon allegations of "negligence." In her words, it is as necessary that negligence should be oved to the satisfaction of a jury in an action of this nd against a medical man in order to constitute a "cause action" as it is when one man sues another for running er him in the street. If the running over is a pure acci-nt—due, for example, to a horse bolting through being ightened by lightning—there is no liability, and justly so. he Employers' Liability Act is referred to in the passage oted, so we may add that the Employers' Liability Act d the Workmen's Compensation Acts provide in certain asses of employment and in certain defined circum-ances that an employer shall be liable for injuries sus-ined by his servant in the course of his employment, hen under the common law no such liability would exist. or example, these Acts, where they apply, may enable a ervant to sue his employer on account of injuries caused by he negligence of a fellow servant. An employer is liable to trangers at common law for injuries caused to them by his ervant's negligence in the course of his employment, as verybody knows, or should know, but not when one ervant injures another in the same employment. We eed hardly point out that the relations of a patient o his medical man are not those of master and servant. njury arising to a medical man from attending upon patient can rarely arise through negligence on the art of the latter only, without any intention of running risk on the part of the former, and there would e plenty of occasion at the trial of such an action or the airing of the well-worn legal saying, "Volenti on fit injuria," which might be applied generally by saying hat those who enter of their free will into a dangerous pro-ession must accept the perils which arise out of it. They ust endure without complaining such personal suffering as may be the natural result of what they have undertaken to do.

BRITISH MEDICAL BENEVOLENT FUND.

AT the July meeting of the committee 22 applications were considered and grants amounting to £161 were voted in relief, one case being postponed for further inquiries. Appended is a short abstract of the cases assisted :—

Daughter, aged 54 years, of late M.R.C.S. Eng., L.S.A., who practised in Bucks. Used to be a governess but is now unable to teach on account of deafness and can only earn a few shillings a week by needlework. Relieved five times, £56. Recommended by Lady Milbank. Voted £10 in ten instalments.

Widow, aged 50 years, of M.R.C.S. Eng., L.S.A., who practised in London. No income; indifferent health; no children. Quite unprovided for at husband's death a few years ago. Relieved twice, £24. Recommended by his Grace the Archbishop of York. Voted £12 in 12 instalments.

Widow, aged 62 years, of L.R.C.P. Lond., L.R.C.S. Edin., who practised in London. No income; only son, aged 42 years, is barely able to support himself on account of mental weakness. Earns a few shillings a week by needlework. Husband's means exhausted by six years' illness before death. Recommended by Mr. Percy Warner. Voted £10 in ten instalments.

Daughters, aged 63 and 65 years respectively, of late L.R.C.P., L.R.C.S. Edin., who practised in Scotland. At father's death, 22 years ago, the younger sister obtained a certificate for teaching and for 22 years has been head mistress in a State aided episcopal school but is now obliged to retire (on account of age) with a pension of £20 per annum. The elder sister is living with her, attending to the household duties, and has assisted for many years in the charge of a resident patient. Recommended by Sir Hector Cameron. Voted £18 in 12 instalments.

Daughter, aged 45 years, of late M.R.C.S. Eng., who practised in Oxfordshire. Income less than £3 a year and since her father's death some years ago has supported herself by taking situations as servant, &c., but has now had an accident by which she is temporarily incapacitated. Recommended by Miss Kinglake. Voted £5.

Widow, aged 54 years, of L.K.Q.C.P. Irel., who practised in Bucks. Practically unprovided for at husband's death. Has endeavoured to establish a nursing home and is now trying to obtain situation as a companion. Recommended by Dr. William Travers. Voted £5.

Daughter, aged 21 years, of late L.R.C.P., L.R.C.S. Edin., who practised in Jamaica. Has been obliged to give up a situation as draper's assistant on account of severe dyspepsia and nervous exhaustion from carious teeth. Is advised to have 23 teeth extracted and replaced by artificial ones and asks for help to get this done. Recommended by Mr. Edward East and Mrs. Evelyn Martin. Voted £5.

Widow, aged 45 years, of L.S.A., who practised in London. Quite unprovided for at husband's death two years ago. Small earnings from needlework; ill health and bad sight. Two sons, aged 19 and 14 years respectively, barely self-supporting. Relieved once, £12. Recommended by Dr. J. A. Ormerod. Voted £14 in 13 instalments, £2 being an emergency grant.

Widow, aged 52 years, of M.B. Cantab., who practised in London. No provision at husband's death five years ago and has supported herself with a little help from this Fund and from friends and by washing and other work. Five children, of whom three are in domestic service, one a boy, earning 6s. a week is an apprentice, and the fifth, a daughter, aged five years. Relieved three times, £41. Recommended by Mr. J. Roche Lynch. Voted £12 in two instalments.

Widow, aged 55 years, of L.R.C.P. Lond., L.R.C.S. Irel., who practised in South Wales. At husband's death a few years ago had £300 insurance money but has spent a considerable portion of this to maintain and educate a daughter, who is studying cookery and laundry work, with a view to teaching these subjects under a county council. Ekes out small income from the remainder of her capital by letting lodgings and the help received from a Masonic fund. Relieved once £5. Recommended by Dr. A. Sheen, vice-president. Voted £5.

Daughter, aged 57 years, of late M.R.C.S. Eng., L.S.A., who practised in Staffordshire. Endeavours to support herself by literary work. Indifferent health. Relieved once, £12. Recommended by Dr. J. Pickett. Voted £5.

Daughter, aged 58 years, of late M.R.C.S. Eng., L.S.A., who practised in Warwickshire. Supported herself for many years as a dispenser but now finds it impossible to get work on account of her age. Only income about £15 a year, being the interest on savings. Relieved once, £10. Recommended by Dr. H. F. Haynes. Voted £10 in ten instalments.

Widow, aged 35 years, of M.R.C.S. Eng., L.R.C.P., who practised in London but was incapacitated for some years before death. Applicant maintains herself as a working housekeeper but has been recommended to have a short rest. Two children, aged 15 and 11 years respectively. Relieved twice, £23. Recommended by Mr. S. H. Bram. Voted £5.

Daughter, aged 56 years, of late M.R.C.S. Eng., L.S.A., who practised in Hants. Income £15 a year and receives a little help from brothers. Endeavours to earn a few shillings a week by needlework but finds her eyesight is failing. Relieved once, £6. Recommended by Dr. W. R. Grove. Voted £5 in two instalments.

Daughter, aged 25 years, of late M.D., who practised in Middlesex. Unable to earn her living on account of ill-health and dependent on a mother with a very small income. Relieved once, £10. Recommended by Dr. H. A. Sansom. Voted £5.

Daughter, aged 59 years, of late M.R.C.S. Eng., L.S.A., who practised in Hampshire. Used to be a governess but unable to obtain pupils any longer. Tries to supplement a pension of £20 per annum from a charity by letting rooms. Relieved nine times, £76. Recommended by Sir Constantine Holman, vice-president. Voted £3.

Widow, aged 50 years, of L.S.A., who practised in Notts. At husband's death, nearly 20 years ago applicant trained as a maternity nurse with the aid of a grant given by this fund and has supported herself ever since, but two years ago invested her savings in a registry office, which has not been a success. Two daughters, aged 21 and 17 years respectively, barely self-supporting. Relieved once, £12. Recommended by Mr. Edmund Owen, vice-president. Voted £6.

Widow, aged 65 years, of M.D. St. And., M.R.C.S. Eng., who practised in London. No income and dependent on children. Relieved five times, £86. Recommended by Mr. E. Parker Young and by Mr. H. W. Kiallmark. Voted £12 in 12 instalments.

Widow, aged 60 years, of L.R.C.P. Edin., L.F.P.S. Glasg. Dependent on a pension of £20 a year from a charity and occasional help from a son earning a small weekly wage. Relieved nine times, £95. Recommended by Dr. F. W. Tatham. Voted £10 in ten instalments.

Daughter, aged 50 years, of late M.R.C.S. Eng., L.S.A., who practised in London. Has supported herself for 30 years by nursing but is now incapacitated by ill-health and dependent on a niece who lets lodgings to maintain herself and a consumptive brother. Relieved twice, £15. Voted £2 as an emergency grant, the case to be considered again at the next meeting.

ASYLUM REPORTS.

Asylum for the Counties of Salop and Montgomery and for the Borough of Wenlock (Sixty-first Annual Report for the Year 1905).—The reports of the visiting committee of this asylum deal largely with the question of providing increased accommodation. At the close of 1905 the asylum contained 801 patients, or 50 more than the numbers provided for; at the same date 65 patients were boarded out elsewhere. The committee is of opinion that it is advisable to enlarge the present institution to accommodate 200 more patients and has notified the county councils to this effect. It likewise recommends the latter to unite with several other local authorities in adapting a residence in the neighbourhood of Birmingham for the purpose of an asylum for idiot and imbecile children—a very wise proposal. The report of the medical superintendent, Dr. Daniel F. Rambaut, states that the admissions numbered 230, the largest annual admission-rate in the history of this asylum. The recoveries were in the proportion of 33·91 per cent. (males) and 36·46 per cent. (females) of the admissions. 86 per cent. of those discharged recovered had been resident less than 12 months. The average daily number resident was 785. The causation of insanity in, and the character of, the admissions are not referred to in the report, but from the statistical tables it appears that only 29 of the total admissions had the "insane

	£	s.	d.
Western Dispensary	62	16	3
Western General Dispensary	104	1	3
Westminster General Dispensary	46	17	6
Whitechapel Provident Dispensary	32	16	3
Woolwich Provident Dispensary	24	7	6
NURSING ASSOCIATIONS.			
Aldgate Freedom	5	0	0
Aldgate Lordship	5	0	0
Belvedere and Abbey Wood	5	0	0
Brixton	20	0	0
Central St. Pancras	15	0	0
Hackney	20	0	0
Hammersmith and Fulham	35	0	0
Hampstead	15	0	0
Kensington	40	0	0
Kilburn	15	0	0
Kingston	30	0	0
Metropolitan (Bloomsbury)	50	0	0
St. Olave's (Bermondsey)	30	0	0
Paddington and Marylebone	35	0	0
Plaistow	65	0	0
Rotherhithe	10	0	0
Shoreditch	55	0	0
South London (Battersea)	45	0	0
Tottenham	5	0	0
Southwark	30	0	0
South Wimbledon	15	0	0
Westminster	25	0	0
Woolwich, Plumstead, and Charlton	30	0	0
East London	150	0	0
North London	50	0	0
London District	360	0	0

MEDICINE AND THE LAW.

Infection from Milk.

DURING recent years several outbreaks of infectious disease have been traced to milk which has been shown to be the means of spreading such diseases among the persons who consume it. Scarlet fever is one of the diseases most commonly spread in this way. It is clear that the germs of that disease occasionally find their way into milk and they seem to thrive in it. These germs may get in either because some person suffering from scarlet fever has been milking the cows or has otherwise been brought into contact with the milk, and it has also been thought that the disease may be caused by the animal being itself the source of infection. In the case of a recent outbreak the source was traced to the farm from which the milk came, when it was found that one of the household was suffering from scarlet fever, and the farmer was unaware of the fact until the medical officer of health arrived on the scene from the district in which the infection had been spread. Besides scarlet fever there are other diseases, the germs of which grow and are conveyed in milk. Of these, typhoid fever, tuberculosis, and diphtheria appear to be the chief. The germs of typhoid fever usually find their way into milk from the water which is either used to wash the vessels into which the milk is put, or is added for the purpose of dilution. Much, of course, can be done to prevent the spread of infectious disease from milk by having the dairies and cowsheds kept thoroughly clean and well ventilated, and this can be effected by the sanitary authorities acting under the orders made pursuant to the Contagious Diseases (Animals) Act, 1886, Section 9 which was not repealed by the consolidating Act of 1894. Experience, however, has shown that even these powers are not sufficient to check the spread of infection, and there are additional powers in Section 4 of the Infectious Disease (Prevention) Act, 1890, and also as regards London in Section 71 of the Public Health (London) Act, 1891. It is questionable, however, whether these powers are sufficient Statutes can afford assistance in two ways. They can confer on the medical officers of health powers of inspection and of obtaining information, and they can also enable them to stop the supply coming from an infected dairy until the cause of infection has been removed. Section 4 of the *Infectious Disease* (Prevention) Act, 1890, enacts that in case the medical officer of health is in possession of evidence that any person in the district is suffering from infectious disease attributable to milk supplied within the district or from any dairy situate within or without the district, or that the consumption of milk from such dairy is likely to cause infectious disease to any person residing in the district such medical officer shall, if authorised in that behalf by an order of a justice having jurisdiction in the place where such dairy is situate, have power to inspect such dairy, and if accompanied by a veterinary inspector or some other properly qualified veterinary surgeon to inspect the animals therein. If on such inspection the medical officer of health shall be of opinion that infectious disease is caused from consumption of the milk supplied therefrom, he shall report thereon to the local authority and his report shall be accompanied by any report furnished to him by the said veterinary inspector or veterinary surgeon, and the local authority may thereupon give notice to the dairyman to appear before it within such times not less than 24 hours as may be specified in the notice to show cause why an order should not be made requiring him not to supply any milk therefrom within the district until such order has been withdrawn by the local authority. If in the opinion of the local authority he fails to show such cause then the local authority may make such order as aforesaid; and the local authority shall forthwith give notice of the facts to the sanitary authority and county council (if any) of the district or county in which such dairy is situate and also to the Local Government Board. Any person refusing to permit the medical officer of health on his production of such order to inspect any dairy, or if so accompanied to inspect the animals kept there, or if after any such order not to supply milk has been given supplying any milk within the district in contravention of such order, shall be deemed guilty of an offence against this Act. The order is to be withdrawn immediately the cause of infection is removed. The word "dairy" includes any farm, farmhouse, cowshed, milkstore, milkshop, or other places from which milk is supplied or in which milk is kept for purposes of sale, and "dairyman" includes any cowkeeper, purveyor of milk, or occupier of a dairy. A medical officer of health, if he suspects that milk is the cause of the disease, will act on his own initiative without waiting for a justice's order. It would be an advantage if local authorities had the power to obtain a list of customers from a dairyman whose milk is suspected; they would then be able more easily to tell whether or not the milk was the actual cause of the disease. It will be noticed that in the section above quoted the local authority can only stop the dairyman from sending milk into its own district. There is nothing whatever to prevent him from sending it into any other urban or rural district in the country. No doubt the proper remedy is to stop the sale of the infected milk entirely. This might be done either by the sanitary authority of the district or by the Local Government Board. It would seem, therefore, that if any amendment of the law is required it should be in the direction of giving the medical officers of health greater powers to discover the source of infection, so that if it is due to milk they should learn the fact at once and immediately inform the purveyor. Urban and rural district councils are the local authorities charged with carrying out and enforcing the Dairies, Cowsheds, and Milkshops Order of 1888 made by the Privy Council, the powers of which in this respect have since been transferred to the Local Government Board. Under these orders the council is required to keep a register of persons carrying on the trade of cowkeepers, dairymen, or purveyors of milk, and persons carrying on those trades without being registered are liable to penalties. A person, however, who only keeps cows or a dairy for the purpose of making and selling butter or cheese and not for selling milk is not treated as a cowkeeper or dairyman for this purpose. If disease exists among the cattle in a dairy or cowshed or other place the milk of a diseased cow is not to be mixed with other milk, or sold or used for human food or (unless it has been boiled) sold or used for the food of swine.

Actions against Medical Men by their Patients and Vice Versâ.

From time to time medical men struck by the obvious hardship of an action brought against a member of their profession by a former patient suggest in the public press that the case should sometimes be reversed and that an action should be brought by a medical man on account of suffering resulting to him in the pursuit of his practice. We have ourselves received letters to this effect and one recently appeared in the *Pall Mall Gazette*, signed "M.D.," which contained the following passage: "In a case in which a medical man has undoubtedly caught, say, scarlet fever, from a patient, could that patient be sued for damages by the medical attendant under the Employers' Liability Act? It seems to me—not being versed in the law—that this suing game can be played by both sides, doctor and patient." To many the answer will be obvious, but to others who like "M.D." are not as "versed

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 9th, 1828.

THE FIRE PROOF MAN.

THE French Medical Journal, *La Clinique*, gives an account of the experiments of M. Martinez, the fire-proof man, as he is called, who is now one of the principal objects of attraction at Paris. M. Martinez is not, like the celebrated Russian salamander, Chamouni, insensible, for a given period, to the effects of heat; on the contrary, he suffers so much exhaustion from his experiments, that he is only able to repeat them once a week. He assumes the title of "Incombustible"; but after the fate of Chamouni, it may reasonably be doubted whether any man can fairly lay claim to the privilege of being fire-proof. The Russian salamander was remarkable for the simplicity and singleness of his character, as well as for that idiosyncrasy in his constitution, which enabled him, for so many years, not merely to brave the effects of fire, but to take delight in an element where other men find destruction. He was above all artifice, and would often entreat his visitors to melt their own lead, or boil their own mercury, that they might be perfectly satisfied of the gratification he derived from drinking those preparations. He would also present his tongue, in the most obliging manner, to all who wished to pour melted lead upon it, and stamp an impression of their seals. His merit, however, was never sufficiently acknowledged, till he was found dead in the oven which he so often entered to amuse his visitors, by what he called his grand experiment,

> "Urit enim fulgore suo qui prægravat artes
> Infra se positas, extinctus amabitur idem."

This grand experiment was to enter an oven with a raw leg of mutton, and not to retire from it till the joint was thoroughly baked. Chamouni entered the oven once too often; his ashes were collected, and conveyed to Mojaisk, his native town, where a neat monument has been erected to his memory, and a well-written Latin inscription commemorates his fate.

M. Martinez, the French salamander, says *La Clinique*, was born at the Havannah; he is 43 years of age, about five feet high, and appears to be of a robust constitution. He has the complexion and features of a Creole; his nose is flat, and, at present, somewhat disfigured by sores produced by the bursting of a thermometer, which was imprudently carried too near his person, at a late experiment, in order to ascertain the temperature of his body. M. Martinez, in his youth, followed the trade of a baker, and from the age of nine to twelve years, was constantly in the habit of exposing himself to very high degrees of heat. Practice has enabled him to bring to perfection a capacity for supporting heat, which seems to be peculiar to persons engaged in the occupation of baking. Tillet gives an account of three girls, servants to a baker, who would remain in an oven heated to a very high temperature, while they swept it, laid the wood, and set the loaves for baking, taking no other precaution than that of keeping the door open. He has ascertained that they remained fourteen or fifteen minutes in the oven, when it was heated to 270° Fahrenheit, ten minutes at 279°, and fifteen minutes at 364°. Thus they supported a degree of heat 67° above that of boiling water, and 170° above that of the human body. Duhamel, Bankes, Solander, and others, have shown by experiments made upon themselves that man may support for some time, a temperature exceeding the natural heat by 174°. On Tuesday last, M. Martinez, the fire-proof man, exhibited his experiments before a vast concourse of spectators. To obviate all suspicion, an oven was heated in the middle of one of the grass-plots in the garden of Tivoli. At twenty-two minutes after eight, M. Martinez entered the oven; the thermometer, which was left in it eleven minutes, indicating 338° Fahrenheit. He remained in the oven fourteen minutes; his pulse, which was at 76 when he entered, beat 130 strokes in a minute when he came out.

Second experiment.—At two minutes before nine, his pulse was at 85; he again entered the oven, and remained seven minutes, the thermometer being at 285° Fahrenheit. The crowd of spectators who rushed forward to see him, when he came out, prevented the exact ascertainment of the state of his pulse, but it was less frequent than at the end of the first experiment.

Third experiment.—At nine minutes past nine, M. Martinez was placed upon a plank, surrounded with candles, and introduced into the oven, the door of which was then closed. He remained in it three minutes. On coming out his face was of a violet colour, but he hummed a tune with great apparent indifference, and plunged himself into a bath of cold water. Before the immersion, his pulse beat 144 strokes in a minute.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon R. T. A. Levinge to the *President*, for three months' course at the Royal City of Dublin Hospital. Staff Surgeon H. Clift to the *Hawke* on recommissioning.

The undermentioned Surgeons have been promoted to the rank of Staff Surgeon in His Majesty's Fleet:—Patrick William MacVean (dated May 15th, 1903); Matthew Livingston Mitchell Vaudin and William Handford Thomson (dated May 13th, 1904); Ernest Stewart Reid (dated Nov. 10th, 1904); and Francis Frederick Lobb, Charles Clarke Macmillan, D.S.O., and James George Watt (dated May 23rd, 1906).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Edward North to be Colonel, vice W. E. Saunders, C.B., deceased (dated July 18th, 1906).

The undermentioned Majors to be Lieutenant-Colonels (dated July 28th, 1906):—Charles H. Burtchaell, John J. Gerrard, John S. Davidson, James Will, James Fallon, John V. Salvage, Arthur R. Aldridge, Joseph Fayrer, Charles J. Macdonald, Charles J. W. Tatham, Thomas H. F. Clarkson, Cathcart Garner, Robert W. Wright, Edwin Eckersley, Reginald J. O. Cottell, Daniel Hennessy, David M. Saunders, Denis M. O'Callaghan, Michael J. Whitty, James F. Donegan, John Donaldson, Hugh B. Mathias, D.S.O., George H. Barefoot, Foster R. Newland, Reginald J. Windle, John J. Russell, George Scott, Andrew Hosie, George F. H. Marks, Ralph Holyoake, Thomas Du B. Whaite, Henry T. Knaggs, Ferdinand S. Le Quesne, V.C., Robert H. Penton, D.S.O., Willington S. Dowman, and Albert L. F. Bate.

The undermentioned Majors are placed on retired pay (dated July 28th, 1906):—James Moir, Henry A. Cummins, C.M.G., George Bent, Edward S. Marder, Charles W. Allport, Thomas Browning, Robert N. Buist, and William J. Trotter.

The undermentioned Captains to be Majors:—John P. Silver (dated July 28th, 1906); Stephen W. Sweetnam (dated July 28th, 1906); William S. Harrison (dated July 29th, 1906); and Harry A. L. Howell (dated July 29th, 1906).

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Eustace M. Callender to be Surgeon-Major (dated July 25th, 1906). Surgeon-Lieutenant Montague S. W. Gunning to be Surgeon-Captain (dated July 24th, 1906). Surgeon-Captain Arthur H. L. Stewart, having resigned his commission in the Imperial Yeomanry, ceases to belong to the Army Medical Reserve of Officers.

VOLUNTEER CORPS.

Royal Engineers (Volunteers): 1st Newcastle-on-Tyne: Surgeon-Captain H. H. Gourley resigns his commission (dated August 4th, 1906).

Rifle: 7th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon Lieutenant-Colonel J. B. Ronaldson is borne as Supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, 2nd Lothian Volunteer Infantry Brigade (dated July 1st, 1906). 1st Volunteer Battalion the East Yorkshire Regiment: Supernumerary Surgeon-Captain H. G. Falkner to be Surgeon-Major, remaining Supernumerary (dated August 4th, 1906). 2nd Volunteer Battalion the Royal Scots Fusiliers: Eric Dalrymple Gairdner to be Surgeon-Lieutenant (dated July 15th, 1906). 2nd Volunteer Battalion the Gordon Highlanders: Surgeon-Lieutenant G. P. Craver resigns his commission (dated August 4th, 1906).

diathesis," by which we presume is meant hereditary predisposition to insanity—a very small proportion indeed. In the large proportion of 56 the cause of the insanity was unknown. The forms of insanity appear from the table to have been the usual ones; general paralysis occurred in the low proportion of 12 of the 230 admissions. The deaths numbered 96, giving a percentage of 12·22 on the average number resident. Necropsies were obtained in the low proportion of 59 per cent. of the deaths; all cases being examined where no objection is made by the friends, the inference is that the latter object more commonly than is usual. 21·9 per cent. of the deaths—a high proportion—were due to tuberculous disease, a condition of things associated with the overcrowding referred to above. Four inquests were held during the year, two of which are of interest; in one the patient's death was ascribed to her having taken floor polish and in the other the verdict was "obstruction of the bowels caused by eating human hair." The report of the Commissioners in Lunacy, beyond a reference to the overcrowding which exists, contains nothing particularly noteworthy.

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

FOR the third time in its history the British Association for the Advancement of Science held its meeting in York, and the proceedings were commenced on August 2nd with the delivery of the presidential address by Professor E. RAY LANKESTER, in which he gave an outline of the advancement of science in the past 25 years. In the course of his remarks Professor Lankester said that the meeting this year possessed an added interest from the facts that the first meeting of the association was held in York just 75 years ago and that its jubilee was celebrated at York in 1881 under the presidency of Sir John Lubbock (now Lord Avebury). Professor Ray Lankester closed his address with a strong appeal to the public to take a greater interest in the work of scientific research, and expressed the view that the organisation and finance of the research army should be the care of the State.

As is usually the case the meeting was divided into quite a large number of sections, and we can only attempt to review a few of the papers with a medical bearing.

Professor FRANCIS GOTCH presided in the section of Physiology, and he addressed his audience on the aims and methods of physiology. At the outset he referred to certain wide issues which were involved in the statement of the late Sir John Burdon Sanderson that the business of the physiologist was "to acquire an exact knowledge of the chemical and physical processes of animal life." The limitation of physiology to ascertainable characters of a chemical and physical type did not commend itself to certain physiologists, physicists, and chemists who had revived under the term "neovitalism" the vitalistic conceptions of older writers. They denied that physiological phenomena could ever be adequately described in terms of physics and chemistry. What possible justification, asked Professor Gotch, was there for branding as hopeless all further physical and chemical investigations of certain aspects of certain phenomena by attributing these to vital directive forces? The introduction of vitalism or biotic energy as a fictitious causative explanation was so opposed, he held, to the spirit and the progress of science that we might safely predict the complete abandonment of this position at a comparatively early date. At any rate, the recent history of physiological progress showed that investigations confined to the study of physical and chemical processes had been the one fruitful source of physiological knowledge. Professor Gotch gave as instances the splendid work of Emil Fischer on the nature and constitution of carbohydrates and quite recently of proteids.

The presidential address in the Chemistry section was delivered by Professor WYNDHAM DUNSTAN, who took for his subject, Some Imperial Aspects of Applied Chemistry. He pointed out the intimate connexion of chemical science with the problems that await solution in connexion with the utilisation of the raw materials and economic products of our colonies. The British manufacturer, he said, is in need of increased and better supplies of the raw material on which his industrial activity depends, and there were vast resources in our colonies which could only be developed by properly directed scientific investigation. In the course of his address Professor Dunstan gave an interesting account of the indiarubber industry, and added that chemists may confidently predict that before the British Association again meets at York the synthetic production of rubber will be a fully-accomplished fact.

An interesting discussion on Radio-activity was opened by the Hon. R. J. STRUTT in the Mathematical and Physical Science section, who dealt with the view that there might be enough radium in the earth to account for its internal heat. He had been led to the conclusion that there was much more radium in rocks than would be needed to maintain the earth's internal heat if the earth were constituted of rock throughout. From this he concluded that the interior of the globe does not contain radium.—Sir WILLIAM CROOKES expressed the idea that radium compressed and locked up in a rock had not much opportunity for heat emission.—Sir WILLIAM RAMSAY dissented from this view as his experiments had led him to exactly opposite conclusions. If the earth was a vast meteorite with a core and slag for crust they would know, he said, the amount of radium in it by testing meteorites, but Mr. STRUTT pointed out that meteorites did not contain radium.

There were some interesting papers communicated to the Physiological section on Sleep and Rest. Dr. THEODORE DYKE ACLAND pointed out the necessity of sleep or rest, especially for young and growing persons. He said that insufficient sleep diminished the power of resistance in the individual and rendered the young more liable to contract preventable disease.—Professor C. F. SHERRINGTON said that it was difficult to formulate any reliable theory as to the amount of sleep really required, and what was wanted was more data on these points, especially in regard to children and the boys in public schools.—Dr. C. S. MYERS said that he found that his memory grew in proportion to the number of hours of sleep that he took.

In the Chemistry section Mr. THOMAS JAMIESON read an instructive paper on the Utilisation of Nitrogen in Air by Plants. He had found that certain plants were endowed with a distinct organ which was admirably situated and especially adapted for the absorption of nitrogen. This organ was at first destitute of nitrogen; it became gradually gorged with nitrogenous matter, and then disgorged the matter into the plant generally. The results were supported by a very interesting series of experiments.—A paper on a similar subject was read by Professor W. B. BOTTOMLEY who referred to the fact that sprinkling urine on the floor of the greenhouse caused a more luxurious growth of orchids. The ammonia liberated from urine was absorbed along with the aqueous vapour condensed by the velamen cells, the absorption of the ammonia being accomplished by the nitrifying action of bacteria.—Dr. GEORGE REID also referred to the nitrifying action of organisms in an interesting paper on the treatment of sewage in shallow filters containing fine particles. He concluded that, given fine particles and good distribution, sewage filters may be constructed much shallower than hitherto; and also that, if a sewage by reason of its strength should prove to be exceptionably resistant to treatment, more will be effected by increasing the area than by deepening the filter.—An interesting paper was read in Section G by Mr. A. J. MARTIN, M.I.C.E., on a general supply of gas for light, heat, and power production. The inauguration of a general supply of cheap gas would, he said, have far-reaching consequences. The smoke nuisance, with its appalling death roll, would be done away with, and the annoyance and damage to property from smoky fogs would be brought to an end. A cheap and abundant supply of sulphate of ammonia would come to the aid of our distressed agricultural interests. The most far-reaching effect of cheap gas, however, would probably be in stimulating the establishment of manufacturing plants in rural districts, thus helping to relieve the congestion in overcrowded towns. No single factor, he pointed out, had played so great a part in determining the distribution of industries as the existence of natural sources of power, and with gas at the prices at which it could be supplied from the collieries, gas power would be even cheaper than water power.

series of very curious mistakes. I defeated him with great slaughter and I still preserve his autograph letter admitting his mistakes. In 1871 Dr. Spencer Cobbold, F.R.S., the great *helminthologist*, attacked me with enthusiastic impetuosity as an enemy of the human race trying to disseminate intestinal diseases by sewage irrigation. But I had anticipated such an attack and eventually he signed judgment against himself, as may be found in the fourth report of the committee of the British Association on the "Treatment and Utilisation of Sewage," at pp 188, 189 of the forty-first report of the Association.

This is the story. On my Romford experimental sewage farm I had taken a calf the parents of which had been fed on sewage grown produce since before his conception, as soon as he could be taken from his mother (which was still being fed on sewage-grown produce), devoted him to science, and kept him in a roomy box for 22 months. In very wet or very cold weather he received at times a little hay or straw, merely enough dry food to keep him in health; otherwise he was fed exclusively on sewage-grown produce; and my object being to give all entozoal individuals a fair chance, he was given only the *rakings* from the Italian grass after the swaths had been carted off, and the outside leaves of cabbages, mangold, and sugar beet, or these roots when no grass or leaves were available. On the day appointed for the sacrifice Professor Marshall, F.R.S., the great surgeon, and Professor W. H. Corfield, both of University College, and some more of my colleagues on the committee (I think Dr. J. H. Gilbert, F.R.S., Dr. A. Voelcker, F.R.S., and Dr. A. W. Williamson, F.R.S.) were present and Dr. Cobbold himself was in special charge of the necropsy. To assist him and Professor Marshall and Professor Corfield I had present two veterinary surgeons and two butchers and the dissection lasted all of a long summer day.

The following are the principal passages in Dr. Cobbold's report: "...... I have to report the perfect freedom of that animal from internal parasites of any kind. I attribute this marked negative result to the following circumstances. First, the animal did not graze on the farm but was fed exclusively upon vegetable products cut and carried from the land. Secondly, the porous nature of the soil and sub-soil alike would rapidly carry off the sewage and thus insure the passage of parasitic germs into the soil itself. Thirdly, I noticed on the irrigated portions of the farm a remarkable absence of those molluscan and insect forms of life which frequently play the part of intermediary bearers. ...... Fifthly, the flaky vegetable tufts collected by me from the sides of the furrows occupied by sewage currents consisted chiefly of *Batrachospermum moniliforme*, in the filaments of which were numerous active nematodes, but no ova of any true entozoon. ...... As some guarantee for the efficient manner in which the carcass of the ox was examined I may mention that the superficial muscles with their associated areolar and aponeurotic coverings were particularly investigated, portions of certain muscles such as the scaleni and sterno maxillaris being dissected through and through. All the viscera were likewise scrutinised, especially the brain, lungs, liver, bladder, kidneys, paunch, reed, cæcum, and other natural divisions of the intestinal canal."

Remarks by the committee.—"...... Those members of the committee who were present and examined it"—the ox—"with Dr. Cobbold concur in his statement as to its perfect '*freedom from internal parasites of all kinds*'"—the italics are the committee's. "They especially draw attention (1) to the fact that on this farm there is 'a remarkable absence of those molluscan and insect forms of life which *frequently* play the part of intermediary bearers' to entozoal larvæ; and (2) to the composition of the 'flaky vegetable tufts' collected from the sides of the carriers. *These* contained 'numerous active free nematodes but no ova of any true entozoon.' It appears, then, that as far as this one case goes (and it is certainly as conclusive as a *single* case could possibly be), there is no evidence that entozoal forms of life are to be found on the farm at all in any stage of their existence or in the flesh of an animal fed exclusively for 22 months on sewaged produce grown on the farm."

The veterinary surgeons and the butchers said that they had never seen any ox so entirely healthy in every way, with no trace even of old disease, and they and everyone present asked me how I accounted for such a phenomenon. I replied that my explanation was very simple—namely, that the ox was specially watered from the house well and not from a horse pond. What I myself thought was just remotely possible was that ova or *hydatids* of T. mediocanellata might have been discovered, for it was probable that many thousands of these ova must have come on to the farm in the 22 months, but, as I believe, not in a condition of vitality. Their absence and that of all other *forms* of entozoal life in the ox was, I venture to think, the triumph of scientific sewage irrigation, so admirably summed up in Frankland's three words, "intermittent downward filtration," which no doubt carried them down into the soil.

I served on the above committee for seven years and I regret to say that all my colleagues have, alas, gone over to the majority except Dr. W. Odling, F.R.S. Sir John Lubbock, F.R.S. (now Lord Avebury), is happily also living, but though nominally a member of the committee, he only acted as treasurer, as our labours were outside his ordinary scientific work and were without the poetic charm of his researches. But the work of the committee was of such great scientific and practical importance that I feel it to be a duty to the country, to the association, and to my much lamented colleagues, with whom I worked so long and with such pleasure, to exhume their forgotten but invaluable work, and I feel sure that both Dr. Odling and Lord Avebury will warmly support that view.

I leave to the medical profession the questions: 1. Whether the presence in an appendix of any entozoal ova can, and must, produce appendicitis. 2. Whether a few drops of thymol, which is a mild antiseptic, taken by the mouth, can find their way—while still antiseptic—to the appendix. 3. Whether having done so, and having destroyed the ova, these will remain for ever harmless. 4. Whether by the microscope an experienced observer can distinguish, for certain, between the ova of the T. trygocephalus and, say, of the T. echinococcus of the dog, so frequently present in stable manure used in market gardens.

I am, Sirs, your obedient servant,

W. HOPE,
Colonel.

Parson's Green, July 24th, 1906.

SUGGESTIONS FOR THE FUTURE OF CONSUMPTIVE PATIENTS OF THE WORKING CLASSES.

To the Editors of THE LANCET.

SIRS,—It is well that more thoughtful attention is being given to the question of the future occupation of consumptive patients, drawn from the working classes, who have been under treatment in chest hospitals or open-air sanatoriums. All those who have any real knowledge of this class of patient are fully alive to the unpractical advice often meted out to these people. Resident medical officers and others in charge of such institutions are bound to be confronted, on discharging their patients, with the question, "What work am I to do?" and to answer such a question and to offer advice worth the having as to a future occupation present what appear to be almost insuperable difficulties in many cases.

Only to-day I was led to advise a skilled worker *to return to his* workshop and to a situation which had been kept open for him, as on his own showing the conditions were not absolutely undesirable, and he himself was penniless and had no means of obtaining equally remunerative employment in the open air or under more favourable *conditions*. The patient was surprised, as he had on more than one occasion been told of the excessive danger to himself of resuming his *old calling* and been urged to seek light open-air work. It is essential that members of the medical profession should avoid, so far as possible, this flat contradiction of each other if any real progress is to ensue, and therefore we welcome as a stimulus to thoughtful consideration of a problem which is daily forcing itself upon all those who have any share in teaching the working-class consumptives the article in THE LANCET of July 28th, p. 217, by Dr. M. S. Paterson and Dr. F. C. Shrubsall. The routine advice so long adopted both in hospital and general practice, "get open-air work," is almost useless. The difficulties besetting the healthy in search of such occupations are too well known to be repeated and much misery and suffering to themselves and their families have resulted from even genuine seekers after "*outdoor*" employments. We run the risk of creating loafers of the very worst type and swelling the ranks of the unemployed and unemployable by holding up "open-air work" as a *sine quâ non* to men who eventually become content to be

Correspondence.

"Audi alteram partem."

THE MEAT OF THE PEOPLE.

To the Editors of THE LANCET.

SIRS,—My attention has been directed to a letter appearing *in THE LANCET of July 28th, signed* "Peripateticus," in which the writer offers the opinion that New Zealand frozen mutton is neither so nutritious nor so digestible as English meat. Your correspondent, however, submits no proof in support of this opinion. Consequently his statement can have little weight. I desire, however, to point out that the relative merits of New Zealand and English mutton have frequently been considered by those closely concerned in the question. Among other tests to determine this I would mention those made a few years ago by the *Hospital* experts when, after exhaustive experiments with New Zealand frozen mutton and Scotch mutton, these gentlemen reported that "the New Zealand meat, weight for weight, has a greater amount *of food constituents if the* fat be taken into account" and that "the digestibility of the meat is all important from the invalid's standpoint, and *remembering that New Zealand meat is very commonly* indeed used for the patients' diets, it is very reassuring to find that the *freezing process* does not *to* any appreciable extent render it less easy of assimilation, or constitute a drawback to its use for persons of feeble digestive *powers.*" I inclose herewith a *report of* the tests referred to, from which you will see that the assertion that New *Zealand frozen mutton is neither so nutritious nor so* digestible as English mutton is completely refuted.

I am particularly gratified to note the kind reference of "Peripateticus" to the watchfulness and care with which the whole process of preparation of meat for the English market *is carried out in New Zealand. That "there is no* question of suspicion as to cleanliness or purity or careless inspection in the colony" is a testimonial that at the present moment, when consumers are so doubtful on these special points, is doubly welcome. With the substitution and sale *of New Zealand meat as English the New Zealand producer* has no sympathy. He would prefer that the product of the colony was altogether sold to consumers here on its merits and at its proper market value. He considers the sale of New Zealand meat as English at English price a fraud upon consumers that should be *stopped by law.*

I am, Sirs, yours faithfully,

W. P. REEVES,

High Commissioner for New Zealand.

Victoria street, London, S.W., August 1st, 1906.

THE PROMOTION OF SCIENTIFIC RESEARCH.

To the Editors of THE LANCET.

SIRS,—In view of the appeal made in the *presidential* address at the meeting of the British Association yesterday for funds for reseach in relation to disease, I shall feel obliged if you will permit me to make some observations upon certain *aspects of my scheme for the promotion* of *scientific research* which have reference to the endowment of research and which may be readily overlooked on a cursory consideration of it. I made no allusion to these aspects of the scheme in my letter appearing in THE LANCET of Sept. 30th last, which refers to a leading article upon the scheme in a *previous* issue of your journal. The scheme, I may remind you, defines conditions under which public moneys may be allocated to grants for discoveries of prescribed descriptions, and it formulates a course of procedure whereby the fulfilment of such conditions may be ascertained. The procedure is, as you will have observed, largely analogous to patent law procedure. No provision in the scheme restricts an applicant's or intending applicant's power to assign a grant to which he may become entitled. Any such applicant or intending applicant may *therefore assign* a part *or* the whole of a prospective grant for a valuable consideration in a manner somewhat analogous to that in which an inventor of a patentable invention may dispose of a share or the whole of his patent rights in such invention.

It will be obvious that where researches directed to the *making of discoveries, for which* the grants may be obtained, are maintained *out of* any endowment fund, those having control of such fund could make it obligatory upon any research worker receiving remuneration, or being otherwise assisted out of such fund, to assign for the purposes of the fund a part or the whole *of any prospective grant* which such worker *might* succeed *in obtaining.* Such an obligation might be equitably imposed where coöperative research work, maintained by any institution, may issue in results for which grants could be obtained.

Public moneys may be allocated in conformity with the *principles of the scheme to grants for discoveries* which elucidate the nature or causation of, or which diminish the mortality due to, a specified disease from which the mortality is great. The scheme provides for the periodical investigation of discoveries forming the subject matters of *application for the grants*, the *maximum amounts* of which are to be prescribed as *provided* by Clauses 22, 29, and 41 of the scheme. If the disease be of so widely prevalent and terrible a nature as, say, cancer the amount of such grants may be justifiably large. And it will *therefore* be seen that if by means of an endowment fund, such as, for example, the Imperial Cancer Research Fund, discoveries are made of the description *referred to*, the scheme, if it were in operation, might be the means of adding materially to the amount of such fund. State *aid, it will thus be* apparent, *might* be obtained indirectly under the provisions of the scheme for endowed institutions, without especially favouring any individual, or class of individuals, applying for the grants. I therefore hope that when the scheme is more fully understood support may be gained for it as well *from* endowed institutions as from those who are desirous that provision be made for research independently of such institutions.

I am, Sirs, yours faithfully,

WALTER B. PRIEST.

Verulam buildings, Gray's Inn, W.C., August 2nd, 1906.

APPENDICITIS AND PROFESSOR BLANCHARD.

To the Editors of THE LANCET.

SIRS,—Professor Blanchard of Paris is stated to have announced that the above dangerous *malady is caused by* the ova of tænia trygocephalus and of two others which he does not name, and he says that he and Metchnikoff found *these ova in each of a considerable* number of appendices which they examined. Blanchard is also stated to speak of these ova as "*parasites," a word not applicable* to the ovum, which could only become the perfected parasite by passing through the alternate generation of *hydatid* in an intermediary bearer. Unfortunately I have no access to Blanchard's *ipsissima verba* and am obliged *to* accept the version of the daily press, and *I may* be misled.

I felt it to be my duty to study that singular page of natural history "helminthology" some 35 or 40 years ago, when *labouring so* hard to get sewage used as a manure instead of as a poison. In this I always had *your whole* hearted support, and with your commissioner, Dr. Stallard, I had frequent communication in those old days, but it is *now*, I suppose, 30 years since I found *myself* writing to THE LANCET. I come out of my shell now because *Blanchard, having abolished* appendicitis without an operation by a *few drops* of thymol, is said to state as a fact—but without apparently the *slightest* attempt at investigation—that these ova are due to the chemically treated sewage of Paris and London used to force vegetables in market gardens. Unfortunately for Blanchard, and still more unfortunately for London, none of its sewage is now con*verted* into vegetables, the sludge being carried by a large *fleet* at huge cost *far out to sea to* poison fish, and the liquid *being still* used for the *pollution of* the Thames and as poison for its fish and riverside population.

Since 1862 I have fought many *battles* in favour of the use of sewage as manure instead of as a poison, and yet in 1906 here comes Professor Blanchard *with a new* and absolutely groundless libel on what I used to describe as the liquor humanitatis. In 1865 the great *Liebig* attacked me in a series of letters in the *Times*, on chemical grounds, under a

THE INFECTIOUSNESS OF TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—I hope you will excuse my boldness in venturing to demur to your dictum in THE LANCET of July 28th, p. 245, on the infectiousness of typhoid fever. I do so in the interests of public health, which must suffer very seriously if the weight of your great authority is thrown in the scale when so momentous a question as to the danger of infection from a particular disease comes to be decided. This is not merely a theoretical point but one of the greatest importance in proper sanitary administration all over the country. Let me appeal in the first place to pathology. Surely typhoid fever is as much a disease of the blood as typhus fever or any of the other exanthemata. The skin, the lungs, the spleen, the liver, and the pharynx come to be affected and not merely the glands of the small intestine. In the case of the pharynx particularly the bacillus typhosus has been found both in the living and dead subjects; and if so, why should it not be carried in the sputa and expectorated as spray in the breath just as tubercle bacillus is carried from person to person? In the second place, appealing to experience, did not the American commission on the diseases of the Cuban campaign find irrefragable proof of infection by personal contact? I have been constantly seeing cases of typhoid fever for nearly 50 years and have over and over again met with examples of personal infection. Two of my assistants have fallen victims to the complaint in attending patients, and in our hospital here three nurses have been so infected. In my own family one of my assistants infected my own children; and my son, by the stupid bungling of the authorities who placed the enteric fever cases into immediate proximity of the surgical lines in the hospital where he was working, had the trouble so badly as to just escape with his life.

Now, Sirs, I can well believe that this evidence does not completely convince the advocates of water-borne typhoid fever and that form of infection alone. But if there be merely room for the smallest doubt on the point surely it is not far short of criminal not to take every precaution against the spread of the disease by *every* possible channel of *any* kind. As a medical officer of health I at least would feel guilty in all such cases if I did not attempt to shut the door against every imaginable source of spreading disease.

As to providing opportunities to students to become acquainted clinically with typhoid fever, it must surely be in the eyes of those who do not believe in personal infection of vastly more importance that the raw practitioner should be able to diagnose properly such diseases as small-pox and typhus fever, which he can only become acquainted with in isolation hospitals. If, as cannot be gainsaid, he ought to study these latter complaints by the bedside then he must go where such diseases can be seen, and while so occupied surely he may take advantage of the opportunity to make himself acquainted clinically with typhoid fever as well. On every ground, then, let us exclude this latter disease from general hospitals and let me add—parenthetically—phthisis as well.

I am, Sirs, yours faithfully,
WILLIAM BRUCE, M.D. Aberd.,
Medical Officer of Health of Ross and Cromarty.
Dingwall, July 30th, 1906.

DEATH FROM OVERLYING.

To the Editors of THE LANCET.

SIRS,—May I, through the medium of your columns, draw attention to a case of death from overlying in which the external post-mortem appearances were unusually definite. I was called early one Sunday morning to see a child 14 days old who was found dead in bed by its mother. The history briefly was this. After visiting several public-houses the mother, who carried her baby with her, was brought home in a drunken condition by friends. They undressed her and put her to bed and placed the baby close to her right side. This was between the hours of 11 and 12 at night. When she awoke in the early hours of the morning she found her baby dead.

On examining the body at 7.30 on Sunday morning I found rigor mortis well marked. The face was of a uniform dusky hue, and there were large patches of the same colour on the chest, abdomen, and on the front of both legs. The right forearm was flexed on the arm and the thumb was clenched by the fingers. The right thigh was flexed on the abdomen, and the big toe was strongly extended at the metatarso-phalangeal joint. The limbs on the left side presented nothing noticeable. The body was removed to the public mortuary and a post-mortem examination made at 3.30 P.M. on the same day. The appearances were the same as at the earlier hour, save that rigor mortis was not so marked and that post-mortem stains were forming at dependent parts. The discolouration of the skin had not altered in position. Pressure with the finger on the cheek did not cause blanching of the skin. The lips were purple. A bloody froth which was not noticeable early in the day had now exuded from both nostrils.

The post-mortem appearances in death from overlying are extremely unsatisfactory and the medical man can often find nothing on which to base an opinion. In this case, however, with the clear history of a healthy infant being placed near its drunken mother, the post-mortem appearances were pronounced. Exudation of a bloody froth from both nostrils is not mentioned as a sign in either of the two text-books I have at hand (Dixon Mann's and Aubrey Husband's). Dixon Mann writes that the mucous membrane of the larynx and trachea is sometimes found injected and may be covered with frothy mucus, possibly blood-stained (Forensic Medicine, p. 226). He quotes Lambert, who examined the dead bodies of several children who were killed from compression of the chest in a stampede from a public building and in a majority of these Lambert noticed froth surrounding the mouth and nostrils. Aubrey Husband writes that the presence of froth about the mouth is not constant and is a common occurrence in those dying from natural causes.[1] It is worth noticing that although the child's nose and mouth presented nothing remarkable at 7.30 A.M. yet at 3.30 in the afternoon a bloody froth extended from both nostrils almost to the chin. General convulsion of all the muscles of the body is one of the stages of asphyxia. The reason why it was noticeable only on the right side may have been because the child lying close by its mother had the left half of its body fixed down by her weight whilst its right was free to contort and twist. The discolouration of the face was a noticeable feature of the case. It resembled the face of a child deeply cyanosed from congenital heart disease, the "morbus cæruleus." The cheek blanched under pressure of the finger but the deep colour gradually returned, and when the body was again examined in the afternoon the face was completely suffused. The body had lain several hours in the mortuary in the dorsal position and post-mortem stains were visible in the dependent parts, but the colour of the face persisted. Turgescence due to throttling passes off, as a rule, shortly after death.

I am, Sirs, yours faithfully,
JOSEPH A. W. PEREIRA, M.D. Brux.
Exeter, August 3rd, 1906.

SPASMUS NUTANS.

To the Editors of THE LANCET.

SIRS,—I have just read with interest the article in THE LANCET of July 28th by Dr. G. F. Still on "Head-Nodding with Nystagmus in Infancy." About a year ago a case came under my notice in hospital which differs in some respects from the cases just published by Dr. Still. I must apologise for not giving a definite history, as I have no notes of it and I have to rely on my memory entirely. It was in a girl, aged five years, who was admitted to hospital for the removal of her tonsils and adenoids. Although she did not show any active signs of rickets she was wasted and ill-nourished and was for that reason kept in hospital for a fortnight after the operation, and it was during the first week that the head-rolling was observed, it gradually lessening under the careful treatment given in hospital.

The exciting cause, however, I feel sure was the presence of pediculi on the scalp. On admission the head was in a terrible state, and it was only after it was cleansed and she was placed on nourishing diet that the cure of the spasmus nutans was accomplished. In addition to the head-nodding she exhibited marked symptoms of nystagmus, but I am unable now to state if one eye was more affected than the other—a point so much emphasised by Dr. Still. She supported by their wives. Of such results we cannot be proud.

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[1] Handbook of Forensic Medicine, p. 101.

On the other hand, we must not lose sight of the many difficulties which lie before the consumptive who has to return to indoor occupations, especially if this follows immediately on discharge from open-air hospitals or sanatoriums. Our own experience tells us how absolutely distasteful and opposed to the highest work of mind or body is the vitiated atmosphere of a crowded factory or workshop, especially after a sojourn in the pure air of the country, where the contrast is so marked. Even if the means for thorough ventilation are provided and opportunities are given to our ex-patients to disseminate the teaching imparted while under medical treatment in our sanatoriums, such apostles of hygienic conditions of life lay themselves open to more or less serious trouble and are voted an unbounded nuisance. To use a spitting flask is to openly court disaster and to ask for open windows brings suspicion in its train. Small wonder, then, that many of them under such depressing and disheartening conditions give up their newly acquired habits and therefore relapse.

To take one instance out of many that could be brought forward, school teachers, who naturally realise the absolute necessity of hygiene, tell us that the attitude of the parents makes it impossible to ventilate schoolrooms and therefore the majority of those in the scholastic profession who have been unfortunate enough to contract the disease resolve at once, when they realise their own needs and the almost impossibility of any real fulfilment of hygienic conditions, to seek some other employment.

Dr. F. W. Burton-Fanning has been pointing out for some considerable period that every ex-patient need not necessarily seek "outdoor employment." He says: "In many cases it is far more important to stipulate that the work involve no fatigue or physical strain, and if the employment involve restriction of fresh air this must be sought more thoroughly during leisure hours." The medical staff of this hospital (I speak for the time of my own connexion with it) has from time to time been pointing out that the sweeping condemnation of all indoor work was absurd and that many of the patients would be doing themselves more harm than good by changing their occupation and giving up their position as skilled workers for the chance of outdoor employment, which was at the best of times remote. It would seem a wiser expenditure of energy to concentrate our attention on the conditions under which our patients have to return to work, without at the moment having regard to the nature of the work itself. Nor is it easy to obtain an adequate idea of these conditions from the patients and the ideal advice as to their suitability would seem to be that founded on a personal investigation. Nor can we ignore the fact that some patients continue to do well under the most adverse conditions. We have an ex-patient who has been in the hospital four times during the past 12 years. He worked in an underground bakehouse and informs us that he rarely does less than 12 hours a day. He comes into the hospital for a short stay and then returns to work again, keeping quite well in the intervals, despite the fact that he was assured by the physicians of a leading chest hospital 12 years ago that if he did not get open-air work he could not live. Needless to say, he does not continue such an occupation at our suggestion, but the case is a remarkable example of the resisting power of some patients, even in the most unfavourable circumstances.

The article in THE LANCET of July 28th does not deal with women workers. The majority of our women patients are domestic servants of one class or another. Once let it be known that they have been under treatment and there are few, if any, situations open to them, and of these a great many prove absolutely unsuitable when the long hours, heavy work, and unsatisfactory sleeping accommodation are taken into account. To advise such persons to attempt to carry out the treatment they have learned is a counsel of perfection which is quite unattainable. On the other hand, what is to be the alternative? The usual alternatives offered to men mentioned by Dr. Paterson and Dr. Shrubsall—viz., "going to sea" and "emigration"—one had almost thought were obsolete. To recommend an ex patient to seek a steward's or purser's berth on board ship would never be seriously entertained by anyone who knew anything of the disease on the one hand or of the conditions of life on board ship on the other. The idea that "emigration" is a panacea for all the ills that our patients are heir to has been dispelled by the experience of emigrants themselves. As regards work on farms or in gardens it is only necessary to point out that very few employers in the country districts can afford to be philanthropists in these days and therefore they cannot give a living wage to men who hardly know how to handle a spade properly. We are, it seems to me, bound to admit that in nearly all the cases the best chances consist in returning to the old work with a new knowledge of how to grapple with the conditions under which that work is to be carried out.

If we can impress upon some of them the advisability of procuring work in the smaller towns in preference to the large cities, even at a less wage, if they can thereby spend their leisure hours more easily in the open country, we shall have attained something. Real work may be done to supplement the educative system of our hospitals and sanatoriums by seeking to induce employers of labour to improve the hygienic conditions of factory and workshop. And even in face of the many difficulties which beset the whole subject we must still hope that the general public will become more enlightened, so that when our patients return to their old occupations they will meet with efforts on all sides to help them to continue their more hygienic mode of life instead of, as is so often the case, having real obstacles put in their way. I am, Sirs, yours faithfully,

W. G. KINTON,

Resident Medical Officer, Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.

August 1st, 1906.

To the Editors of THE LANCET.

SIRS,—I was very glad to read the article by Dr. M. S. Paterson and Dr. F. C. Shrubsall which appeared in THE LANCET of July 28th under the above heading. Little good is likely to come of recommending ex-sanatorium patients to seek work in country districts, especially if such have to leave the ranks of skilled to swell the ever-increasing ranks of unskilled labour.

Surely the remedy lies in so improving the sanitary condition of our factories and workshops that the skilled workman may go back to his job with a fair chance of maintaining that improvement in health gained by sanatorium treatment. I am aware that there are great difficulties to be overcome before such an ideal state of affairs can be brought about in this country. Nevertheless, such difficulties are not insuperable, and once overcome are likely to afford a more rational solution to a vexed problem than would be the finding of special unskilled occupation for skilled men.

The writers' remarks as to sea-going and emigration are, from a New Zealand standpoint, particularly opportune, especially as regards the latter. Few physicians when they glibly advise a consumptive working man to go to the colonies can realise the adverse conditions under which the unfortunate patient has to travel, especially if the weather be bad and the emigrants have to pass most of their time in cabins which under the best conditions are crowded and ill ventilated. What man would advise, knowing the true conditions, such a patient a purser's mate's job in a small cabin or the stuffiness of the steward's "glory hole"? Many and many consumptive patients have I seen who have arrived at New Zealand ports in varying stages of the disease with no friends to go to, with no knowledge of the country, and with very little money. I can call to mind many instances where within two or three months of arrival such unfortunate persons have been on the charitable aid rates of the colony. That patients should be sent out under such conditions is neither fair to themselves nor to the ratepayers at large. In New Zealand we are doing all that can be done towards stamping out the scourge of tuberculosis. Sanatoriums are being established in various parts of the colony by public subscription and Government subsidy, and though in New Zealand the consumption death-rate is only about half what it is in this country there are no special advantages of climate sufficient to compensate a poor consumptive for risking the disadvantages of a long voyage in search of a "cure" which can for the most part be obtained at his own door and within comparatively easy reach of those most intimately concerned in his welfare. Moreover, legislation exists and is likely to be more stringently enforced to prevent the indigent consumptive from landing on New Zealand's shores.—I am, Sirs, yours faithfully,

T. H. A. VALINTINE, D.P.H., M.R.C.S. Eng.,
L.R.C.P. Lond.,
Assistant Chief Health Officer of New Zealand.

Farnborough, Hants, July 30th, 1906.

THE INFECTIOUSNESS OF TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—I hope you will excuse my boldness in venturing to demur to your dictum in THE LANCET of July 28th, p. 235, on the infectiousness of typhoid fever. I do so in the interests of public health, which must suffer very seriously if the weight of your great authority is thrown in the scale when so momentous a question as to the danger of infection from a particular disease comes to be decided. This is not merely a theoretical point but one of the greatest importance in proper sanitary administration all over the country. Let me appeal in the first place to pathology. Surely typhoid fever is as much a disease of the blood as typhus fever or any of the other exanthemata. The skin, the lungs, the spleen, the liver, and the pharynx come to be affected and not merely the glands of the small intestine. In the case of the pharynx particularly the bacillus typhosus has been found both in the living and dead subjects; and if so, why should it not be carried in the sputa and expectorated as spray in the breath just as tubercle bacillus is carried from person to person? In the second place, appealing to experience, did not the American commission on the diseases of the Cuban campaign find irrefragable proof of infection by personal contact? I have been constantly seeing cases of typhoid fever for nearly 50 years and have over and over again met with examples of personal infection. Two of my assistants have fallen victims to the complaint in attending patients, and in our hospital here three nurses have been so infected. In my own family one of my assistants infected my own children; and my son, by the stupid bungling of the authorities who placed the enteric fever cases into immediate proximity of the surgical lines in the hospital where he was working, had the trouble so badly as to just escape with his life.

Now, Sirs, I can well believe that this evidence does not completely convince the advocates of water-borne typhoid fever and that form of infection alone. But if there be merely room for the smallest doubt on the point surely it is not far short of criminal not to take every precaution against the spread of the disease by every possible channel of any kind. As a medical officer of health I at least would feel guilty in all such cases if I did not attempt to shut the door against every imaginable source of spreading disease.

As to providing opportunities to students to become acquainted clinically with typhoid fever, it must surely be in the eyes of those who do not believe in personal infection of vastly more importance that the raw practitioner should be able to diagnose properly such diseases as small-pox and typhus fever, which he can only become acquainted with in isolation hospitals. If, as cannot be gainsaid, he ought to study these latter complaints by the bedside then he must go where such diseases can be seen, and while so occupied surely he may take advantage of the opportunity to make himself acquainted clinically with typhoid fever as well. On every ground, then, let us exclude this latter disease from general hospitals and let me add—parenthetically—phthisis as well.

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SIRS,—May I, through the medium of your columns, draw attention to a case of death from overlying in which the external post-mortem appearances were unusually definite. I was called early one Sunday morning to see a child 14 days old who was found dead in bed by its mother. The history briefly was this. After visiting several public-houses the mother, who carried her baby with her, was brought home in a drunken condition by friends. They undressed her and put her to bed and placed the baby close to her right side. This was between the hours of 11 and 12 at night. When she awoke in the early hours of the morning she found her baby dead.

On examining the body at 7.30 on Sunday morning I found rigor mortis well marked. The face was of a uniform dusky hue, and there were large patches of the same colour on the chest, abdomen, and on the front of both legs. The right forearm was flexed on the arm and the thumb was clenched by the fingers. The right thigh was flexed on the abdomen, and the big toe was strongly extended at the metatarso-phalangeal joint. The limbs on the left side presented nothing noticeable. The body was removed to the public mortuary and a post-mortem examination made at 3.30 P.M. on the same day. The appearances were the same as at the earlier hour, save that rigor mortis was not so marked and that post-mortem stains were forming at dependent parts. The discolouration of the skin had not altered in position. Pressure with the finger on the cheek did not cause blanching of the skin. The lips were purple. A bloody froth which was not noticeable early in the day had now exuded from both nostrils.

The post-mortem appearances in death from overlying are extremely unsatisfactory and the medical man can often find nothing on which to base an opinion. In this case, however, with the clear history of a healthy infant being placed near its drunken mother, the post-mortem appearances were pronounced. Exudation of a bloody froth from both nostrils is not mentioned as a sign in either of the two text-books I have at hand (Dixon Mann's and Aubrey Husband's). Dixon Mann writes that the mucous membrane of the larynx and trachea is sometimes found injected and may be covered with frothy mucus, possibly blood-stained (Forensic Medicine, p. 226). He quotes Lambert, who examined the dead bodies of several children who were killed from compression of the chest in a stampede from a public building and in a majority of these Lambert noticed froth surrounding the mouth and nostrils. Aubrey Husband writes that the presence of froth about the mouth is not constant and is a common occurrence in those dying from natural causes.[1] It is worth noticing that although the child's nose and mouth presented nothing remarkable at 7.30 A.M. yet at 3.30 in the afternoon a bloody froth extended from both nostrils almost to the chin. General convulsion of all the muscles of the body is one of the stages of asphyxia. The reason why it was noticeable only on the right side may have been because the child lying close by its mother had the left half of its body fixed down by her weight whilst its right was free to contort and twist. The discolouration of the face was a noticeable feature of the case. It resembled the face of a child deeply cyanosed from congenital heart disease, the "morbus caeruleus." The cheek blanched under pressure of the finger but the deep colour gradually returned, and when the body was again examined in the afternoon the face was completely suffused. The body had lain several hours in the mortuary in the dorsal position and post-mortem stains were visible in the dependent parts, but the colour of the face persisted. Turgescence due to throttling passes off, as a rule, shortly after death.

I am, Sirs, yours faithfully,
JOSEPH A. W. PEREIRA, M.D. Brux.
Exeter, August 3rd, 1906.

SPASMUS NUTANS.

To the Editors of THE LANCET.

SIRS,—I have just read with interest the article in THE LANCET of July 28th by Dr. G. F. Still on "Head-Nodding with Nystagmus in Infancy." About a year ago a case came under my notice in hospital which differs in some respects from the cases just published by Dr. Still. I must apologise for not giving a definite history, as I have no notes of it and I have to rely on my memory entirely. It was in a girl, aged five years, who was admitted to hospital for the removal of her tonsils and adenoids. Although she did not show any active signs of rickets she was wasted and ill-nourished and was for that reason kept in hospital for a fortnight after the operation, and it was during the first week that the head-rolling was observed, it gradually lessening under the careful treatment given in hospital.

The exciting cause, however, I feel sure was the presence of pediculi on the scalp. On admission the head was in a terrible state, and it was only after it was cleansed and she was placed on nourishing diet that the cure of the spasmus nutans was accomplished. In addition to the head-nodding she exhibited marked symptoms of nystagmus, but I am unable now to state if one eye was more affected than the other—a point so much emphasised by Dr. Still. She also had a very bad internal strabismus in both eyes, for which she was wearing convex glasses.

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[1] Handbook of Forensic Medicine, p. 161.

The case seems to me the more interesting now after reading Dr. Still's paper, as the age of the child does not tally with the ages of those reported and also I find no mention of the pediculus capitis as a cause of head-nodding. I may say that it was always when sitting up that she rolled her head, that the movement was from side to side, that the nods were quite 100 to the minute, and generally lasted for a period varying between one and two minutes, but that there was no regularity of time between the spasms.

I am, Sirs, yours faithfully,

North Kensington, W., August 1st, 1906. HAROLD MOWAT.

MEDICAL PRACTICE IN SOUTH AFRICA AND ITS COMPLICATIONS.

To the Editors of THE LANCET.

SIRS,—South Africa may be divided into two parts—the veld where there are no medical men and the towns where there are too many. One consequence of this unequal distribution of the profession is that the farmer on his "plaas" on the lonely illimitable veld has to treat most of the ailments of his household. He has a "pelikaan" for tooth extraction and his wife has her "apotheek"—a box full of the locally renowned Dutch medicines,[1] such as Haarlem oil, Spanish fly, Hofman's drops, &c., but these have of late been supplemented by pink pills, bile beans, liquozone, and the host of modern remedies whose praise is in all the newspapers. Any old "tante" is the midwife for the neighbourhood and any farmer acts as gravedigger and undertaker when required. Sometimes a medical man has to be fetched from a great distance, but only rich families can afford this, for the fees are a guinea an hour, and ten hours are easily spent on the long roads. Medical knowledge gained by recognised methods of study and observation is, as a rule, not very highly esteemed by the "Boeren," who have a decided preference for the "wonderdokter," and in 1899 there was in the Transvaal a famous specimen of the last-mentioned class of practitioner. During the war he was in Cape Town and the Dutch Afrikanders there believed in him. His fame had, in fact, spread all over South Africa. The Afrikanders are like one big family—what happens in the Transvaal is soon known in Cape Town and *vice versâ*. "Dr. Eugen," as he was called, was quite a celebrity. From far and near the farmers travelled to Pretoria in 1899 to consult him. There was always a file of carts and wagons in his street and inside his door was a crowd peacefully waiting. A consultation always lasted five minutes and the fee was one guinea. As soon as the patient came forward the "dokter" laid both his hands on the former's head and something like an electric current was supposed to pass between healer and subject. The "dokter" knew at once what was wrong. He did not prescribe medicines as he was not possessed of any diploma, but the leading feature of his treatment consisted in regulation of the patient's diet. After his electrical diagnosis he sat in his big armchair and consulted his "spirits" about the different foodstuffs and beverages to be given or withheld. As a rule the farmer had to give up his coffee and wine, which was indeed a very hard trial to the Boer. During winter "Dr. Eugen" left Pretoria for the river Zambesi, where he lived on "drill fish," as they call the torpedo or cramp fish. In this way he got a new store of electricityfor the next season! Sometimes a rich farmer fetched him for an urgent case to his house. This was extremely expensive and the "doctor" would never take the ordinary food placed before the Boer and his family but only a fowl prepared in his own way. Oom Paul Kruger, the late President of the Transvaal Republic, had little faith in this "wonderdokter." He sent for him once but when Eugen began to "consult his spirits" the President asked him to what kind of spirits he was talking. "Are they in heaven?" "I do not think so," was the answer. "Then go," said Oom Paul.

Perhaps there is no part of the world in which patent medicines have such a vogue as in South Africa. Since the greater part of the population come into the world, live, and die without professional aid domestic medicines and some hereditary skill on the part of the farmers have the field much to themselves. No wonder that in this country the newspapers and periodicals, whether daily, weekly, or monthly, contain so many advertisements of patent medicines and preparations for invalids. In a recent issue of the *Cape Times*, our leading newspaper, the following may be counted: (1) Savaresse's Sandal Capsules; (2) Doan's Kidney Pills; (3) Wolfe's Schnapps (*pictures* of 18 tired men!); (4) Carter's Liver Pills; (5) Larola (for the skin); (6) Co-Do (for the mouth); (7) Montserrat; (8) Cockle's Antibilious Pills; (9) Apiol and Steel Pills; (10) Steedman's Soothing Powders (for children cutting their teeth); (11) Zam-Buk (in the news columns); (12) Bile Beans (in the news columns); (13) Sheldon's Digestive Tabules (for indigestion, dyspepsia, &c.); (14) Chamberlain's Cough Remedy; (15) Jones's Rheumaticure (for sciatica); (16) Vichy-célestins (for gout, diabetes, &c.); (17) Kopps (for the hair); (18) Chicago Cold Cure (cures a cold in 24 hours); (19) Cooper Neuralgia Cure; (20) Beecham's Pills; (21) Towle's Pills (invaluable to ladies); (22) Wood's Great Peppermint Cure; and (23) Dr. Shedon's New Discovery. It may here be remarked parenthetically that in the English papers such advertisements in the news columns are always marked *Adv.* Dutch papers may take them without any addition and as a rule with deceptive headlines. Once there was almost a quarrel between the editor and the director of *Ons Land*; the former said: "My readers must see *Adv.* under such articles." "No," said the latter, "our shareholders have our first care." Dr. Sanden's electric belt occupies an advertisement space of about 50 square inches in every issue of our leading papers, Dutch and English, but the pink pills have been much less conspicuous of late. Perhaps this is caused by the harshness of our legislators. Before the new Custom tariff came into force on May 25th the agent for the pink pills paid only a trifling *ad valorem* duty on 7*d.* per 1000, this being the value as per invoice. But now he has to pay £1 sterling for one pound avoirdupois, which is a very different thing. Of course, the farmers are the best customers for patent medicines, but as some of them read little more than their Bibles and a weekly church paper—*De Kerkbode* or *De Vereeniging*—it is no wonder that even these religious papers get a good share of advertisements from the patent medicine vendors, so that next to a highly poetical and edifying explanation of some passage of Holy Writ there may be found a most prosaic paragraph on diseases and their treatment. Every druggist keeps a fairly complete stock of patent medicines as far as he can get hold of them, but some nostrums are not yet to be found in any drug store, because the agents do not wish to surrender any portion of their profits.

Medical men are not popular with the people, not even with the town people, partly because they are said to charge very high fees and partly because they are supposed to be required only for treating diseases of the teeth and for performing operations in which cutting and sewing are necessary. In cases of internal ailments the general idea is that the cheapest and easiest way is to go to a chemist and ask his advice. In 1901 and 1902 there was perhaps as much venereal disease in Cape Town as in any town on the globe, and most of these cases of syphilis and gonorrhœa were treated without a medical man. One druggist had 500 venereal patients in a month and all dealers in medicinal substances laid in full stocks of mercurials and santal midi to be disposed of to customers coming for advice and treatment.

As a rule the Boers succeed very well in rearing their large number of children. At Standerton there is a family with 29 children. When I lived in a farming district in the Transvaal for a year I found that between 10 and 15 children in every house was the average and very few infants died. In Cape Town, however, more than 50 per cent. of the children die in their first year and even among the white people the death-rate is large. Our town council discussed the question in January last with the result that a duly qualified nurse now goes round to the houses where there are infants, examines the little ones, and gives the parents good advice.

I am, Sirs, yours faithfully,

C. J. VAN RIJN.

Cape Town.

CARDIFF AND SWANSEA HOSPITALS.

To the Editors of THE LANCET.

SIRS,—The grounds for your unfavourable criticism in THE LANCET of July 28th of the management of the Swansea Hospital as compared with that of Cardiff for the year 1905 appear to be the relative cost per bed *as* furnished by your correspondent. These were—Swansea, £71 19*s.*; Cardiff,

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[1] Many pharmaceutical chemists announce in gold letters on their windows that they sell Dutch medicines.

£64 5*s.* 4*d.* Your correspondent in arriving at these results has in the case of Swansea taken the *total* ordinary expenditure, £8214, and divided it by the average number of beds occupied (114·12), with the result (£71 19*s.*) as the cost per bed, but in the case of Cardiff has taken from the total ordinary expenditure, £12,745, a sum of £2606, leaving a balance of £10,139, which he has divided by the average number of beds occupied (157·77) with the result (£64 5*s.*) as the cost per bed. These results are two totally different costs per bed, there being no connexion whatever between them, and any comparison must be absurd. When the expenditure of both hospitals is compared according to the standard laid down by Sir Henry Burdett and adopted almost universally by the London and provincial hospitals, and taking into account the out-patients, painting, and bank charges in both cases, the result would be as follows:—

Year.	Swansea.		Cardiff.	
	Cost per bed after deducting 1*s.* 6*d.* for out-patients.	Cost per bed on total ordinary expenditure.	Cost per bed after deducting 1*s.* 6*d.* for out-patients.	Cost per bed on total ordinary expenditure.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
1903	57 0 0	60 5 0	70 15 0	79 15 0
1904	60 0 0	63 12 0	72 0 0	80 15 0
1905	63 0 0	71 19 0	74 0 0	84 10 0

This is not time to criticise the standard adopted by Sir Henry Burdett or to question the right of the Cardiff authorities to adopt any standard they may think fit but if the expenditures of two hospitals are to be compared it can only be done satisfactorily by adopting a common standard for both.—I am, Sirs, yours faithfully,

W. LLEWN. MORGAN, Lt.-Colonel.
Swansea, August 7th, 1906. Chairman, House Committee.

JUVENILE SMOKING.

To the Editors of THE LANCET.

SIRS,—Your annotation in THE LANCET of July 28th, p. 241, on Juvenile Smoking leaves absolutely untouched the point made months ago by the Lord Advocate of Scotland—viz., that cigarettes can be fetched by the bigger boys and secretly sold or given by them to their younger brothers or companions, in which way the proposed legislation would be rendered a dead letter. To suggest that this difficulty is insuperable seems absurd. Yet amid all the writers on the subject not one has told us how to meet the point, nor, strange to say, does the Select Committee make any suggestion. I am, Sirs, yours faithfully,

July 30th, 1906. OBSERVER.

TWO POINTS OF MEDICAL ETHICS.

To the Editors of THE LANCET.

SIRS,—With reference to the letter of "I.M.S." in THE LANCET of July 28th, p. 258, I submit the following opinions.

1. As to "shameful" diseases your first duty is to your employer. The medical officer is employed by the Crown—the person who pays the piper calls the tune—and the sick person has joined the service in full understanding of this fact and, of course, the disease must be stated accurately on the returns. No one can expect you to make and sign an incorrect official statement. Take the case of a man unfit for duty from alcoholism. When you are sure of your diagnosis it must be at once officially reported. If not, you probably show a bad example to, and thereby degrade, your subordinates; you prejudice the service; you very rarely gain anything for your patient, except a putting off of the evil day which will come, and the trouble which follows generally recoils on yourself and serves you right.

2. Officers under treatment by private practitioners. It is most unlikely that a civil practitioner would see without inquiry an officer who was, *a priori*, probably the patient of another. In the unlikely case (I am not talking of consultations which I always encouraged, they comfort the patient and often help you) you may deal with the civil practitioner directly and, of course, if the interruption of your treatment has prejudiced the case, clearly it is your duty to report that to the patient's commanding officer; unless, of course, your withers are wrung and conscience tells you you can do better next time. In this case pocket your experience and put it to profit.

I am, Sirs, yours faithfully,
July 31st, 1906. R. N.

THE INSPECTION OF PORK IN IRELAND.

(FROM A CORRESPONDENT.)

A QUESTION of great importance came before the Belfast corporation on August 3rd—that is, how to deal with the carcasses of swine affected with tuberculosis. The market committee carried a motion[1] to the effect that when the lesion was strictly confined to the glands of the neck the head and neck should be destroyed and the rest of the carcass returned to the owner, but that where two or more organs were affected the whole of the carcass should be destroyed. The committee followed in its regulation the practice in Glasgow, Dublin, and Edinburgh, and in Germany, but when the matter came up for confirmation before the city council it was decided to send back the resolution to the markets committee for further consideration on the ground that the 1898 Royal Commission on Tuberculosis had stated that "in view of the greater tendency to generalisation of tuberculosis in the pig we consider that the presence of tubercular deposit in any degree shall involve seizure of the whole carcass and of the organs"

This matter raises several very interesting subjects for discussion. Everyone admits that proper and thorough inspection is necessary, but many believe that the view of the 1898 Royal Commission cannot, with the evidence accumulated since it reported, be maintained. First, on what evidence is it established that there is a "greater tendency to generalisation of tuberculosis in the pig"? In the case of the very pigs seized recently in Belfast the most careful experiments made microscopically and by injecting the flesh of the animals into guinea-pigs (which are so sensitive to tuberculosis) have totally failed to demonstrate or to produce the disease, though in these same pigs the glands removed were tuberculous. Among the most complete and authoritative treatises on meat inspection is that of Dr. Ostertag, professor in the Veterinary High School at Berlin, and in the fourth edition of his great "Handbook of Meat Inspection," translated in 1904 by Dr. Wilcox, veterinary editor, Experimental Station Record, Washington, with an introduction by Dr. Mohler, chief of the Pathological Division, United States Bureau of Animal Industry, the whole question is very fully discussed. It is demonstrated that the experience of the pathological-anatomists shows in the most unambiguous manner that the meat of tuberculous animals plays only an inconspicuous rôle in the etiology of human tuberculosis. With reference to the view generally entertained that in undoubted cases of local tuberculosis the meat is harmless, Dr. Ostertag says: "The assumption of the harmlessness of meat in cases of undoubted local tuberculosis will probably remain for all time as an immutable dogma of meat inspection"; while in reference to the current notion that the generalisation of tuberculosis is always associated with a harmful property of meat Dr. Ostertag says that this can no longer be maintained, for, according to him, "only under certain conditions, and not uniformly, does the generalisation of tuberculosis produce a harmful property in the meat." It is clear that the opinion of the 1898 Royal Commission cannot be regarded as unchallenged, however perfect the counsel conveyed. Secondly, even were such a rigid meat inspection found to be necessary, it is absurd that it should be applied by one local authority and not put in force by another. Why should carcasses be condemned in one place, which would pass in another where there is a less rigid inspection, or none at all? It is common in several of the smaller Irish towns for pigs to be bought and "cured" without any inspection at all, and what is still more ridiculous, the meat of these animals is sent into Dublin and Belfast where it is used without being inspected at all in its "cured" state. Many hold that meat inspection should be taken out of the hands of the local authorities. The Government could then adopt one uniform method of meat inspection based upon scientific veterinary and medical knowledge. No one wishes to consume the tuberculous meat of any animal, even though cooking renders it harmless, but, while taking every proper precaution by inspection to get rid of such a risk, it must be clearly recollected that the meat of a tuberculous animal plays a comparatively small rôle in the causation of human tuberculosis. The so called panacea of meat inspection must not be allowed to draw away attention from other important factors in the causation of consumption.

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[1] See THE LANCET, August 4th, 1906, p. 327.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Infirmary for Children.

SINCE the appeal for £10,000 for this institution first appeared sums amounting to £1500 have been subscribed and a further sum of £500 has been promised conditionally on the balance being raised. £13,000 are still required to complete the new building, but of this amount £5000 have been voted by the city council provided the balance is raised by the public. Unless the greater portion of £5000 is contributed by the end of September favourable contracts for the unbuilt portions will lapse and the completion of the infirmary will be indefinitely delayed. The committee is earnestly asking for help to complete the work.

Infantile Mortality in Liverpool.

Infantile mortality is continuing to be a cause of great anxiety to the health committee of the city council. Allusion was made in THE LANCET of July 28th, p. 260, to the provision of special beds at the Royal Infirmary for the treatment of infantile diarrhœa, at the suggestion of the health committee. I have now to record that a similar suggestion was received on July 25th by the West Derby guardians from Dr. E. W. Hope (the medical officer of health) requesting their asistance in mitigating the effects of certain infantile complaints which are causing many deaths amongst young children. The guardians in response have allotted a couple of wards at Belmont-road workhouse for their reception.

Death of Dr. Felix B. O'Flaherty.

By the death of Dr. F. B. O'Flaherty, which occurred on August 1st from cardiac disease, a promising and comparatively young practitioner has been removed from our midst. He was one of several brothers, some of whom fought on the British side in the late Transvaal war, and one of whom lost his life. The interment took place on August 3rd at Flaybrick cemetery, Birkenhead, in the presence of a large concourse of sympathising friends. The deceased was only 45 years of age.

Infantile Mortality in Cheshire.

Mr. Francis Vacher (the medical officer of health of the county of Cheshire) in his annual report for 1905 states that the proportion of infants who died was 9 per 1000 births less than in the whole country, and the proportion of infantile deaths in the municipal boroughs was 22 per 1000 more than in the 76 great towns of the kingdom. This is a fair record as regards the whole county but is a decidedly bad record as regards the municipal boroughs. The variation in weather conditions and the incidence of epidemics influence the general death-rate from year to year and as surely increase or decrease the mortality among infants. The infantile mortality-rate being high in a particular year might be due to the incidence of sun and rain, the passing of a wave of epidemics, and such recondite causes; but the infantile mortality-rate being high year after year in some special district, or part of a district, is not to be explained in this ready way, so that no one can be made responsible. A high infantile mortality-rate in any district must be due to local insanitary conditions in that district, which it behoves the local authority to discover and to remedy. The main causes of a high rate of infantile mortality may be summed up as follows: (1) the employment in factories of those about to become mothers and those who have been recently confined and should be nourishing their infants; (2) the infants of factory-employed mothers being badly cared for and ill fed during the absence of their mothers at work; (3) the environment of the infant being insanitary; (4) there being no provision for isolating infectious children or disinfecting infectious bedding, &c.; and (5) the ignorance common among working women as to how an infant should be fed, clothed, and managed.

August 6th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Newport Corporation Bill.

ALTHOUGH the Police and Sanitary Committee of the House of Commons did not approve of all the clauses in the Improvement Bill recently promoted by the corporation of Newport, important provisions have been obtained and they will make for more effective public health administration in the borough. The difficulty of fixing the responsibility for negligent drain-laying and similar work upon the proper person has long been felt. As Mr. T. Pridgin Teale said long ago, if a platelayer places rails so that they overlap and in consequence a train is overturned and some person is killed, that platelayer would be put upon his trial for manslaughter: why cannot the same be done in the case of a drainlayer who lays a line of drains so negligently that a fatal case of typhoid fever is the result? It will in the future be possible to punish such negligence in Newport, for Section 4 of the Corporation Act provides that "if a water-closet or drain is so constructed or repaired as to be a nuisance or injurious to health the person who undertook or executed such construction or repair shall, unless he shows that such construction was not due to any wilful neglect or default, be liable to a penalty not exceeding twenty pounds." A difficulty which is not confined to Newport has been experienced in connexion with the repair of drains. Where these are newly laid or are re-constructed there are already sufficient powers of inspection but in the case of ordinary repairs this is not so. The clause intended to deal with this difficulty was allowed by the committee of the House of Lords and required that 12 hours' notice should be given by any person who desired to repair a drain which should be left open for a period not exceeding 24 hours in order that it might be inspected. The chairman of the police and sanitary committee, however, considered this to be unreasonable and the section as it now stands merely requires notice to be given of the intention to repair and gives free access to officers of the corporation for inspection purposes. The sanitary officers have power under the Act to test drains (though not by water under pressure) when they have reason to suspect that such drains are defective. An attempt has been made to meet the difficulties which have arisen owing to the conflicting definitions of a drain in those districts where the Public Health Acts Amendment Act, 1890, is in force. A drain is defined to include any sewer or drain either already constructed or to be constructed with which two or more houses or premises (whether belonging to the same or different owners) are now or may at any future time be connected. The blowing or inflating of meat is prohibited. The sections referring to tuberculosis in connexion with milk supplies are identical with those in the Rhondda and other private Acts. They include provisions prohibiting the sale of milk for human consumption from cows suffering from tuberculosis of the udder; requiring the isolation of diseased cows and notification to the medical officer of health, giving more or less complete powers of inspection both within and without the district, together with the taking of samples of milk and the summary stoppage of particular supplies. Other sanitary provisions have reference to the regulation of the manufacture and sale of ice-creams. The corporation is also empowered to make by-laws for preventing the pollution of water which it is authorised to take, even though the contamination of the water may take place in another sanitary district.

The West Wales Sanatorium.

At a meeting of the building committee of this institution which was held recently at Alltymynydd it was reported that the sanatorium was approaching completion. The committee hopes that the public will make a generous response to the appeal for further funds which was issued not long ago and anticipates that great assistance will be rendered by the working classes.

Physical Training.

The first of the competitions organised by the Glamorganshire county council for the physical improvement of the children of the county took place at Porth on July 14th. Five towns entered for the competition and Porth was awarded the shield.

The Vaccination of School Teachers.

At a meeting of the Gloucestershire education committee held on July 28th the subcommittee recommended that the committee do not consent to the recognition under Article 11 (e) of the Code for 1906 of teachers who have not been vaccinated. Article 11 (e) provides that "no teacher will be recognised who has not produced a medical certificate satisfactory to the board or who has not been vaccinated. Except that, with the consent of the local education authority, an unvaccinated teacher who has declared to the board his conscientious objection to vaccination may be recognised." An amendment was moved to the effect that no advantage would be secured by refusing to appoint unvaccinated teachers, but this was lost by a large majority, and the subcommittee's recommendation was adopted.

The Western Branch of the British Dental Association.

The annual meeting of the Western Branch of the British Dental Association was held at Exeter on July 20th in the new building of the Devon and Exeter Dental Hospital, Exeter. The secretary reported that the branch had 96 members and that the financial position was satisfactory. Mr. T. A. Goard delivered the presidential address, in which he dealt principally with unqualified practice and the evils of advertisement. Mr J C Wing (Ilfracombe) read a paper on the Strengthening of Vulcanite Dentures, and demonstrations were given by Mr. J. J H. Sanders, Mr. W. H. Lyne, Mr. J. H. Gartrell, and Mr F. T. Haycroft. The annual dinner was held in the evening at the Rougemont Hotel.

The Winsley Sanatorium.

At a meeting of the Bristol health committee held on July 17th the financial position of the Winsley Sanatorium was discussed at considerable length. It was stated that the liabilities of the institution amount to £15,000. The capital sum charged to public authorities for beds by the committee of the sanatorium was much below the actual cost, scarcely more than half, and even if the bodies to whom beds have been allotted pay £100 per bed additional, as has been suggested, the sum will not approach the actual outlay. If this course were generally taken, however, it would relieve the pressure that has arisen, and if the charitable public were to subscribe as well a satisfactory state of affairs would be arrived at. The health committee did not come to any definite decision as regards increasing the contribution to the sanatorium. The city of Bristol has 20 beds in the institution and it is hoped that more money will be forthcoming.

The Didworthy Sanatorium, Dartmoor.

The annual meeting of the subscribers to this institution was held on July 31st under the presidency of the Earl of Mount-Edgcumbe. The sanatorium was opened in 1903 with accommodation for 14 patients, but recently the institution has been enlarged to receive 35 patients, although, unfortunately, owing to lack of funds it has not been possible to keep the beds always occupied. The medical report stated that 66 patients had been admitted during the year ended April 31st and the results had been very satisfactory. The financial statement showed an unfavourable balance of £38. Sir Massey Lopes has endowed the institution by investing £500 in Consols for that purpose, and it is hoped that a greater amount of financial help will be given to the sanatorium so that the good work which it is performing may not have to be curtailed.

August 6th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Appointments to the Glasgow Post-office.

FOLLOWING upon the death some time ago of Dr. William Dougan, who had been medical officer to Glasgow Post-office for a considerable number of years, the Postmaster General decided to make a new departure in connexion with the appointment. Owing to the growth of the department, and the consequent increase in the number of officials employed, it was deemed inadvisable to continue the system of appointing only one medical officer to be exclusively in the service of the establishment. The postal area was divided into six districts and it was decided that a medical officer should be attached to each, the gentlemen appointed being at liberty to engage in private practice. In reply to the advertisement of the positions about 300 applications were received. The Postmaster-General has now made the following appointments: Central district, Dr. D. Watson; western district, Dr. R. O. Adamson; southern district, Dr. W. Lawson; eastern district, Dr. J. Patrick; northern district, Dr. J. McKie; and Govan, Dr. R. Y. Anderson.

Anthrax in Glasgow.

During the past fortnight two cases of anthrax have been admitted to Belvidere Hospital. Both patients were employed in hair works and had worked with hair in its natural state. In the case of the first patient South American and English horsehair were used in the factory at which he worked. When inquiry came to be made none of the English hair remained on the premises, and the South American hair gave a negative result on bacteriological examination. The duties of the second patient consisted in receiving and opening on arrival bales of hog's hair from America. Here also the bacteriological inquiry was negative. The situation of the sore in both cases did not suggest infection through a dust laden atmosphere, but by inoculation through a superficial abrasion on the arm. The medical officer of health, however, has pointed out to the health authorities the danger that arises during the process of teasing the hair. In both factories in which the cases occurred the raw hair after unpacking is teased and mixed by machinery, and during the process, despite the fact that fans are attached to the machine, a considerable quantity of dust is produced. Should any consignment of hair contain anthrax this dust-laden atmosphere must constitute a very grave danger to the workmen.

Tinned Sardines as a Diet for Young Children.

Another series of cases of illness after partaking of tinned food was reported last week by the Glasgow district police. The food at fault was a tin of sardines purchased in a shop in the Southern district and partaken of by a family residing in the district. About one and a half hours later the four children who had partaken of the food developed alarming symptoms and were removed to hospital where they were treated for ptomaine poisoning and ultimately recovered. That there may have been something wrong with the food in question cannot be denied, but the worst feature of the incident is the ages of the children who partook of the food. The oldest was aged five years and the others respectively four years, two and a half years, and nine months. It seems appalling that it is possible for such gross ignorance or carelessness to exist, and it throws some light upon the difficulties with which municipal authorities have to contend in grappling with the problem of the large mortality among children who are reared in cities. The parents are aliens residing in the city, but this does not lessen the gravity of the case so far as the municipal authorities are concerned, for it has come to be recognised that if any improvement in infantile mortality-rate is to be effected it is just this class of parents that will have to be got at and educated.

Practical Inspection of Meat.

A subcommittee of the town council of Glasgow is considering a letter from Professor John Glaister, who states that it has been remitted by the Faculty of Physicians and Surgeons of Glasgow to the President of the Council and himself to approach the corporation requesting its coöperation in the establishment of a course of teaching on meat inspection and of the diseases of animals communicable to man. It has been suggested that this class should be conducted by the chief veterinary surgeon of the corporation.

Hygiene and Salubrity.

The town council of Glasgow has received a letter from the committee of the Association for the Promotion of Hygiene and Salubrity in Dwellings, intimating that the second International Congress of the Association will be held in Geneva from Sept. 4th to 10th. The committee requests that the municipality will be represented at the congress by an official delegation, which would bring forward the fruit of its experience and take part in the discussion of the reports presented.

August 7th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Increase of Lunacy in Ireland.

AN official statement signed by the two Lunacy Inspectors, Sir George Plunkett O'Farrell and Dr. E. M. Courtenay, just made public, says that insanity is undoubtedly growing in Ireland, and the inspectors express the opinion that a cause of this increase is to be found in the emigration from the country of the strong and healthy members of the community, with the consequence that the weak and the infirm, who are more likely to fall victims to insanity, are left behind. The increase, they also say, is partly due to the return of emigrants suffering from mental breakdown, who either come back voluntarily or are repatriated by the United States Government. It is a common fallacy that the amount of insanity is greatest in cities, where the race for life is keen. On the contrary, the inspectors state, statistics prove that the amount of insanity in proportion to population is greatest in remote rural districts, while in the busiest towns the ratio is lowest. The explanation, it is stated, is that the exodus of the strong and vigorous is greater from rural than it is from urban districts. One curious fact is noted in the report, that while in England and Scotland the proportion of females in asylums exceeds that of males, the opposite is the case in Ireland. Tracing the causes of insanity in Ireland, the inspectors find that through heredity there has been a small increase; through alcoholic excess the proportion has fluctuated during the last decade, but in 1901 it was only 8 per cent. higher than it was in 1894. The result of the abuse of drugs has varied considerably. Giving the causes of insanity in the order of their importance, it is found that heredity heads the list, showing, as it does, 36 per cent. of the whole number of cases. Alcohol comes next, being responsible for 25 per cent. of the aggregate total of the cases of insanity.

Poor-law Medical Officers.

Much disappointment has been caused among the Poor-law medical officers of Ireland by the refusal of the Prime Minister to appoint an Irish medical man to succeed the O'Conor Don as a member of the Royal Commission in connexion with the Poor-laws.

The Office of Medical Superintendent Officer of Health of Belfast.

At a meeting of the Belfast city council held on August 1st a letter was read from the Local Government Board, saying "they will be glad if the council will take an early opportunity of reconsidering the recommendation of their public health committee, so that effect may be given to the Board's views concerning the desirability of offering a higher salary than £600 a year for the very responsible position of medical superintendent officer of health of a city of the size and population of Belfast." The Lord Mayor suggested (and this plan was adopted) that the public health committee should consider this letter and said that, if necessary, he would call the council in committee.

Medicines in Monaghan Dispensary.

A fortnight ago Mr. R. A. Crawford, medical officer of Castleshane dispensary district, appeared before the Monaghan board of guardians with a stock bottle which he had taken out of Listraor dispensary depôt and which should have contained liquor morphinæ hydrochloridi but which presented a strange appearance. The guardians having ordered the contents of the bottle to be analysed, this was done with the following scandalous results as testified to by the analyst, Mr. Charles McMullen, of the Chemical Laboratory, Corn Market, Belfast: "The result of my analysis proves beyond a doubt that the bulk of the sample consisted of decomposed urine and also contained a very small quantity of liquor morphinæ hydrochloridi." As a result of this communication it was decided to put the whole facts before the Local Government Board and to ask its advice as to the steps to be taken in what seems to be a most disagreeable matter.

Belfast and District Lunatic Asylum.

At a meeting of the committee of the Belfast Asylum held on August 6th Mr. G. T. Hine presented a report and plan on the proposed villa colony system. He is in favour of the new asylum being constructed (as the medical superintendent, Dr. W. Graham, has always advised) on the villa colony system. He lays emphasis on two ends to be aimed at in laying out an asylum on this system. The one is to segregate the buildings for the two sexes and at the same time to adapt the arrangement of the buildings to the classification and treatment of the different phases of lunacy; the other is to establish as closely as possible the element of home in every building, thus providing the patients with that variety of activities and occupation that have engaged them ere they entered the asylum. In a word, the villa colony system, as elaborated by Mr. Hine, is a village with every house complete in it as a home, yet so managed as to lend itself to economical administration and control as one establishment. The accommodation required at Purdysburn is for 1400 patients, and in the face of the truly terrible Irish statistics on lunacy the building of such an institution must be proceeded with as soon as possible. The committee has fixed upon the system; indeed, guided by its medical superintendent, Dr. Graham, it had anticipated the great advantages in the villa colony system which Mr. Hine dwelt upon. All that is required now is the approval of the corporation for the present scheme.

Down District Asylum.

The report of this asylum for the year 1905 shows that there was nothing of exceptional interest in the character of the cases admitted (163—83 males and 80 females), the type being in the main melancholia with much associated organic and functional disease. The deaths numbered 58, the chief causes being heart disease (21) and pulmonary tuberculosis (14). The average cost of maintenance of each patient was, calculated on the gross expenditure, less repayment of loans, £23 11*s.*, while the net average cost was £22 2*s.* 4*d.* (that is, after deducting repayment of loans, receipts from paying patients, and other miscellaneous receipts). So far as the administrative history of the asylum is concerned, the year may be regarded as one of quiet progress. The increased recovery rate, the reduced death-rate, the freedom from escapes, accidents, and violence, the very rare occasions on which seclusion or restraint was adopted, the improvement in general health, and last, but not least, the still further reduction in average cost of maintenance, all denote a development in the right direction and indicate that the demands made on the institution are adequately met. As a county institution in a comparatively poor country it fulfils the function of dealing as efficiently and economically as possible with the acutely insane and the chronic class of lunatics.

The Lord Lieutenant in Belfast.

His Excellency, the Lord Lieutenant, Lord Aberdeen, has recently paid a State visit to Belfast. On August 1st Lord and Lady Aberdeen visited the Royal Victoria Hospital and the Mater Infirmorum Hospital. On August 2nd his Excellency opened the new hospital for infectious diseases at Purdysburn. He was received by the Lord Mayor, Alderman Dr. J. King Kerr (chairman of the public health committee), and other members of the corporation.

August 7th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Indo-Chinese Medical Service.

AT a meeting of the Academy of Medicine held on July 24th M. Kermorgant read a report on the working of the Indo-Chinese Medical Service. Great progress has been made by the authorities who have already established a number of medical stations, isolation hospitals, maternity hospitals, and the like. They have also told off, for every consular post, certain medical officers to render medical aid to the natives and to notify and to deal with epidemics. The good results of this useful department are already evident by a marked fall in the death-rate and in the frequency of epidemics.

The Hygiene of Diet.

The Société Scientifique d'Hygiène Alimentaire has recently allotted the prizes founded by Dr. de Rothschild, secretary of the society. The first prize was won by an essay bearing the motto "The Dietary (*Ration Alimentaire*) of the Child from Birth to the age of two years." Many striking essays were sent in on the question of milk distribution in large towns. Four prizes in all were allotted. This competitition and the essays submitted therein are the advance guard of the International Congress on the Hygiene of Diet which is to be held at Paris from Oct. 22nd to 27th.

Poisoning by Tincture of Arnica.

At a meeting of the Hospitals Medical Society held on July 26th M. Siredey related the case of a woman, aged 55 years, a chronic alcoholic. She drank by mistake a liqueur glass of tincture of arnica and afterwards suffered from stomatitis with an ulcerated sore-throat. The ulcers were thickly covered with false membrane. The ulceration had nothing to do with the alcohol, which was only of 60 degrees, but was due to the arnica, which is well known to possess irritating properties. M. Balzer related an instance of the application of tincture of arnica followed by cutaneous erythema and generalised eczema.

Arsenic in the Treatment of Whooping-cough.

M. Nittis made some remarks upon the above subject at a meeting of the Hospitals Medical Society held on July 27th. He was led to try the drug through its successful employment in chorea and in asthma and he found that he obtained better results from its use in whooping-cough than from any other drug hitherto recommended. The preparation used was Fowler's solution and the dose was one minim per diem for every year of the child's life. The treatment should be kept up for two weeks but if swelling of the face occurred the drug should be left off for a day or two. If after some weeks the cough returned the treatment should be recommenced. M. Nittis had noticed that under this treatment the cough took on a very benign form, without paroxysms; in fact the disease might be said to be aborted.

Sequestra of the Temporal Bone removed through the Auditory Canal.

At a meeting of the Medico-Chirurgical Society held on July 9th M. Cauzard commenced his observations on the above case by saying that sequestra of the ear belong to one of the three portions which make up the bony skeleton of the ear—viz., the petrous, the squamous, and the tympanic portions of the temporal bone. In addition they might be formed by the ossicles of the middle ear. In the case which he was going to bring before the society the patient had suffered from recurrent polypi of the ear due to an osteitis of the posterior wall of the auditory canal but without any lesion of the middle ear. Despite an operation which was undertaken to remove the inflamed portion, the patient did not get well till five months later. Recovery only followed on a large sequestrum being taken away which was formed by a portion of the tympanic bone. The case was remarkable for the slight interference with the sense of hearing and for the tympanum remaining unaffected. M. Cauzard thought that the original trouble started from a furuncle in the external auditory canal.

August 7th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Appendicitis.

IN the Berlin Medical Society there have lately been prolonged discussions on the subject of appendicitis, the frequency of which is causing a certain amount of anxiety among the general public. An unusual event at one of the meetings of the society was the presence of Count Posadowsky, the Secretary of State for the Interior, who attended because a collective investigation of the whole question is about to be made on behalf of the Imperial authorities. Owing to the great number of speakers the discussion extended over three meetings, so that this year the society continued its sessions until August 1st, although the recess usually begins in the middle of July. Notwithstanding the heat of the weather the three meetings were well attended. In his introductory remarks the President, Professor von Bergmann, said that the present discussion would be devoted only to questions of diagnosis and treatment, pathology, etiology, and operative procedures would not be gone into. Dr. Kraus, professor of clinical medicine, in describing the symptoms of the disease, said that the clinical phenomena were often not in accordance with the anatomical lesions, so that errors of diagnosis were rather frequent. Slight attacks might be treated by medicines given internally, but every case in which the symptoms continued for more than 24 hours must be operated on without further delay. Professor Heubner said that with children operation should be the rule, as in them the disease was more serious than in adults and a fatal issue was more frequent. Professor Orth, the successor of Professor Virchow, said that in about 10 per cent. of the cases operated on the appendix was found to be normal on microscopical examination. On the other hand, appendicitis was found in post-mortem examinations of persons who had died from other diseases or from accidents and in whom no symptoms of appendicitis had been recognised during life. Hæmorrhages into the mucosa of the appendix were not always a symptom of appendicitis but might be the result of injury inflicted during the operation. Professor Israel discussed the question of operating in the interval between acute attacks and said that an operation was not necessary after a purulent appendicitis, in which obliteration of the appendix usually occurred, and when two years have elapsed since the last attack. An operation was indicated (1) when there were chronic pains issuing from the appendix; (2) when several attacks have happened within one year; (3) in pregnant women; and (4) in children. An operation was also to be recommended when a woman expected to become pregnant or when the patient was very nervous about a relapse, or when there was a prospect of the patient residing in a place where surgical aid was not available. It was safer to operate in a quiescent interval than to wait for another attack, because about 50 per cent. of the patients were liable to relapse and because the mortality in operations during the interval was much smaller than in operations during an attack. Professor Rotber said that diagnosis was not so difficult as was supposed. Pain in the right hypogastric region, nausea, and fever were prominent symptoms. His practice was to operate at once, even in the prodromal stage. Dr. Nöggerath described some experiments in which he was able to produce hæmorrhages in the appendix by ligature of the mesenteric vessels; hæmorrhage was therefore not a symptom of appendicitis. Dr. Guttstadt of the Royal Statistical Office reported that the number of cases of appendicitis registered in the Prussian hospitals was 8412 in 1903 and 10,793 in 1904, and that the proportions operated on in these years were 40·4 per cent. and 44·23 per cent. respectively. The majority of patients were of ages between 15 and 25 years. A commission was then appointed to carry out a collective investigation in accordance with the instructions given by the Imperial authorities.

Myiasis Intestinalis.

At a recent meeting of the Verein für Innere Medicin Dr. Wirsung read a paper on Myiasis Intestinalis. He said that grubs of flies were constant parasites in the skin, the intestines, and the naso-pharyngeal cavity of animals. He had seen three cases of this kind in the human species. One of the patients was a child one year of age, in whom a dozen full-grown grubs of the common fly were discharged from the bowels without any pain. Another was a child, five years of age, who passed 13 living grubs of the common fly after the occurrence of some symptoms of colitis. The third patient was a rachitic boy, four years of age, suffering from chronic enteritis, in whom symptoms of fœtid lientery had developed. On the administration of calomel and naphthalin about 50 grubs were passed. The effects produced by this condition were, as a rule, not striking enough to allow an exact diagnosis to be made.

Professional Secrecy.

An interesting decision of fundamental importance was lately given by the High Court of Justice at Leipsic. A woman had contracted syphilis from a man and after his death recovered damages from his brother and heirs. The medical attendant of the deceased was summoned as a witness, but declined to give evidence on the ground that the law imposes silence on medical men as to facts concerning their patients. The plaintiff's counsel, on the other hand, asserted that professional secrecy was no longer binding after the death of the patient. The High Court decided that only the patient himself was competent to release his medical attendant from the obligation of professional secrecy, and since he had not done so it must be presumed that he did not wish the facts concerning his illness to be made public after his death.

Medical men in Germany may therefore henceforth decline to give evidence affecting deceased patients.

A Visit of French Medical Men.

A party of French medical men belonging to the Œuvre de l'Enseignement Médical Complémentaire, a society for post-graduate study, is about to come to Germany for the purpose of visiting the medical institutions of the country. The tour will include several of the larger cities, such as Cologne, Frankfort, Leipsic, and Munich, as well as some of the university towns, such as Bonn, Heidelberg, and Marburg. Three days will be spent in Berlin. A committee has been formed here under the presidency of Professor von Bergmann to entertain the French visitors and to show them the various sights.

August 6th.

ITALY.

(From our own Correspondent.)

The Psychology of Mountaineering.

To day, the Feast of Our Lady of Snow, appears appropriate to the discussion of the "Alpine question" which in many journals, professional and lay, has been provoking animated controversy under a variety of headlines, from "*Il Diritto di Rompersi il Collo*" (the right to break one's neck) to "*La Psicologia dell' Alpinismo*" (the psychology of mountaineering). And certainly there is one aspect of the question which is of present interest—the jeopardy seemingly inseparable from "peak-storming" and the loss of life already so considerable in the season now passing. From Domodossola, on the Italian side of the Simplon, a correspondent writes to me under date August 3rd:—"The week just ended has been simply tragic in mountaineering annals Within eight days the deaths among the 'Alpinisti' have been nine. The last two months, moreover, have registered no fewer than 20 fatal casualties—the latest being that of Christian Zimmermann, who fell headlong from the Burgenflüh, and that of J. Burckart who while gathering edelweiss dropped down a precipice—both men picked up quite dead and horribly mangled." Still, in spite of these warnings the Alpine mania, as some call it, betrays no tendency to diminish; nay, it appears so steadily on the increase as to have prompted scientific inquiry into its etiology, its "prophylaxis," and its cure. Without reverting to Conrad Gessner's "De Admiratione Montium" which, published in the sixteenth century, marks the first enthusiasm for Alpine exploration—an enthusiasm originating, characteristically enough, not in the Latin but in the Teutonic civilisation—there is no doubt that within the last 70 years the passion for ascending to altitudes above the snow-line has from decade to decade gained in intensity till, from being the distinction of a few, it has become the obsession of thousands, organised into clubs and animated by a spirit of competition quite international. Beginning on the northern aspect of "the water-shed" it has infected the southern or Latin side so powerfully as to make the Italian a formid able rival to the German not only in deeds of daring and in the observation and research, which in the eyes of many are its redeeming concomitants, but even in the vindication of it as a means of physical and moral discipline—a palæstra, in short, out of which its votary emerges a more virile and effective citizen. "Alpinisti," like the late Quintino Sella and the happily surviving Angelo Mosso, have no equals in this latter pleading—Mosso's work, in particular, marking an epoch in the utilisation of mountaineering in the scientific, hygienic, and educative sense. To the compatriots of these pioneers belongs the classification of Alpine clubmen into three distinct groups: (1) the nature student. (2) the artist, and (3) the sportsman. Under this last head a recent Italian "Alpinista" dwells enthusiastically on the benefit already wrought on his compatriots by the intelligent, circumspect, and systematised practice of mountaineering, and predicts for it a future which will see the Latin race emerging from its "shallowness, effeminacy, and weakness, moral as well as physical," into a truly "Anglo Saxon virility of mind and body." So pursued, mountaineering becomes a real "palæstra vitæ" and merits all the encouragement it is receiving from the Italian medical schools, particularly those of Genoa, Turin, Pavia, and Padua. Its disadvantages, not to say dangers, will disappear in proportion as the scientific element impregnates and controls its practice, and this element Professor Mosso has inculcated and driven home in treatises already classic which in foreign renderings enjoy a popularity far beyond their original public. In the first place, like all discipline, it must find its votary in a condition, mental as well as physical, adequate to the demands it makes on him. He must not enter upon it till his mind has been cleared, his physique braced, and his endurance or "staying power" ascertained. How many cases, Mosso has asked, in which the victim has been found dead at the bottom of a crevasse, are to be explained not by unsteady footing or non-recognition of danger but by cardiac lesion declaring itself at the critical moment when all the energies of mind and body should have been at their best? The tragic death, some ten years ago, of Baron Peccoz on the Lyskamm in the presence of the Queen of Italy, set down at first to a misplaced step, was afterwards shown to be due to arterio-sclerosis—to a cardiac condition that contra-indicated the exercise of which he and his Royal companions were so passionately fond. With such precautions as medical diagnosis can suggest and with such practical guidance as experience has put on record, the danger, seemingly inseparable from mountaineering, ought to be minimised and its benefits reaped with a smaller percentage of casualties than the traveller is exposed to on the railway or the motor-car. Such is the net result of the vivacious and interesting discussion on "Alpinismo" which has been enlivening the Italian press these last few weeks, and if its lessons are intelligently put in practice we can sympathise with the forecast of Sella and Mosso when they saw in mountaineering a "palæstra vitæ" conducive to a development which in the case of Italian youth particularly is equivalent to a moral and physical rehabilitation.

August 5th.

Middlesex Hospital Medical School.—The following is a list of the scholarships, prizes, and medals awarded for the session 1905–06: Class Prizes.—Practical pharmacy, S. J. Lee; chemistry, E. W. Hall and S. L. Tressider (equal); biology, R. C. J. Doughty and E. W. Hall; organic chemistry, G. O Teichmann; histology, R. W. Annison and A. C. English (equal); physiology, R. W. Annison; practical anatomy, J. B Tackaberry; anatomy, H. G. Kilner and J A. Rose (equal); pathology, R. M. Peake; bacteriology, E. L. Kennaway and C. F. Robertson; forensic medicine and public health, E. L. Kennaway; psychological medicine, C. H. S. Webb; practical midwifery, R. M. Peake; practical surgery, C. F. Robertson; practical medicine, J. T. Daly; midwifery, C. H. S. Webb; and medicine, E. L. Kennaway. Scholarships, &c.: Second year's exhibition, H. G. Kilner; Leopold Hudson prize, M. L. Hine; Lyell medal and scholarship, A. O Morson; the governors' prize, M. L. Hine; Hetley clinical prize, M. L. Hine; Freeman scholarship, F. E. W. Meadows; and Broderip scholarships, M. L. Hine and F. E. W. Meadows, equal.

The United Operative Plumbers' Association.—At a meeting of the United Operative Plumbers' Association of Great Britain and Ireland held at King's College on July 31st there was a large attendance, including representatives of the building trade and various public bodies. Sir Albert K. Rollit, who presided, supported by the general secretaries of the Trades Unions of Stonemasons, Plasterers, Carpenters and Joiners, and others, expressed on behalf of the governors and council of King's College their warm appreciation of the services rendered to the educational work of the College by the Plumbers' Company and the Carpenters' Company. He referred to the great impulse given to the cause of technical education generally by the guilds of London. The master of the Plumbers' Company (Mr. W. D. Caröe) referred in the course of an excellent speech particularly to the practical coöperation set up between the plumbers and the public health and water authorities in regard to the regulations affecting the health of the community and the greater economy in the distribution and use of water for domestic and other purposes. He alluded to the perfection of the work of the middle ages and later period and dwelt upon the hereditary character of the training of craftsmen and the reverence for accumulated experience. Mr. Randall, on behalf of the association, expressed their appreciation of the aid rendered by the Plumbers' Company to maintain the principle of apprenticeship as the basis of training for the craftsmen and called attention to the influence often exercised by the spirit of commercialism overruling the spirit of craftsmenship by looking to the output of work rather than the quality and finish of the product.

MEDICINE IN TORONTO.

III.[1]

THE POSITION OF MEDICINE IN ONTARIO IN 1850, WITH AN ACCOUNT OF SOME OF THE MEDICAL INSTITUTIONS AT THE PRESENT TIME.

OUR last article dealt mainly with the history of the Medical Faculty of the University of Toronto previous to 1850, and discussed the steps taken in regard to its foundation. Before going further into the history of the development of the medical school in connexion with the University we may well consider more fully than we have done the establishment of Trinity College Medical School and some other of the medical institutions of Toronto, as well as the part played by the Medical Board of Upper Canada, which counts for much in the history of the medical profession which it served.

As stated in the first article, the board was organised by Act of Parliament in the year 1815, and, in the words of the Act, was endowed with the authority to examine all persons desirous to apply for a licence to practise physic, surgery, and midwifery, or either of them, within the province of Upper Canada, and being satisfied with such examination that any person is duly qualified to practise physic, surgery, or midwifery, to certify the same under the hands and seals of two or more of such board, in order that a person so applying may obtain a licence. The board consisted of five or more persons, and from the year 1815 up to 1865, with the exception of a lapse of less than two years when the College of Physicians and Surgeons had its short existence from 1839 to 1841, performed its functions ably. Dr. Christopher Widmer was for many years president of this board. The course the board pursued in the examination of candidates in 1847 was as follows. First, some acquaintance with Latin was required of a candidate. With this view, if a candidate could not construe some paragraphs of Gregory's Conspectus, a portion of the *Pharmacopœia Londinensis* or a Latin prescription was substituted; in the event of a total failure in these the professional examination was not proceeded with. If the Latin examination was satisfactory then followed, secondly, materia medica and pharmaceutical chemistry; thirdly, anatomy and physiology; fourthly, the theory and practice of medicine; fifthly, practical surgery; and sixthly, midwifery and the diseases of children. It will be gathered from the above that the examination was for that period fairly comprehensive, and the board seems to have fulfilled its duties conscientiously and with due regard to the interests of the public and to the dignity of the profession. The board continued its meetings up to the year 1865 when it was finally dissolved, its functions having been much superseded.

FIG. 9.

Dr. James Bovell.

The establishment of Trinity College Medical School has been referred to cursorily. It was mentioned that its establishment was owing to the fact that the State University of King's College had been wrested from the control of the Church of England. The then Bishop of Toronto, Dr Strachan, took up the matter in the interests of the Church of England population of Ontario, and in April, 1850, went to Great Britain with the object of securing a charter for a Church of England university to take the place of King's College. Sectarian feeling ran high in Ontario in those days, as is shown by a statement made by the bishop on the eve of his departure for England. He said: "The College or University of Toronto is founded on the ruins of King's College, whose royal charter it has repealed, under the pretence of amending it, and whose endowment of eleven thousand per annum, though secured by a patent from the Crown and guaranteed by the pledge of three kings, it has seized and appropriated to itself." In the course of the summer of 1850 Dr. Hodder and Dr. Bovell projected and organised a school of medicine which was advertised as the Upper Canada School of Medicine. When the Bishop of Toronto who had succeeded in obtaining a charter, returned from England, a deputation from this school waited upon him and tendered their services as the medical faculty of the projected university. This offer was accepted, the Upper Canada School of Medicine became the medical faculty of the new Church of England University, and lectures were commenced at once. The Medical Faculty, indeed, commenced its duties in the autumn of 1850 before a beginning had been made with the erection of a university building.

Professor Macallum, in reference to the old Trinity Medical Faculty, informs us that it became defunct about 1858 and between its decease and the foundation of Trinity School of Medicine (which became Trinity Medical College in 1878) 15 years elapsed. The Faculty of Medicine of Trinity College in 1850 consisted of the following members:—Professors: Obstetrics, Dr. E. M. Hodder; Institutes of Medicine, Dr. James Bovell; Surgery, Dr. Henry Melville; Anatomy and Physiology, Dr. U. Bethune; Practice of Medicine, Dr. F. Badgley; and Materia Medica and Therapeutics, Dr. W. Hallowell. Of these the best known were Dr. Hodder and Dr. Bovell. We published a portrait of Dr. Hodder in the previous chapter, together with a brief note on his life. Dr. James Bovell, his colleague in the foundation of the Trinity Medical Faculty, was a very interesting man. He was born in the Barbados in 1817 and studied medicine in London, Edinburgh, and Dublin. He came to Canada in 1848 from Barbados, where he had been in practice, and settled in Toronto, where he soon acquired a large connexion. He became Professor of the Institutes of Medicine and Dean of the Medical Faculty in Trinity College and in 1851 he assisted in founding the *Upper Canada Medical Journal*, the first medical journal published in the province. A deeply religious man, some 10 or 12 years after he came to Toronto he wrote several devotional works which attained considerable popularity. The Bishop of Antigua urged upon him the duty of taking orders, so great was his influence for good among all classes. He was accordingly ordained and spent the rest of his life as a missionary in the West Indies. Dr. Bovell died in the Barbados on Jan. 16th, 1880.

We can get a fair idea of the progress that medical science in its general aspects had made in the capital of Upper Canada by 1850 if we consult Rowsell's Toronto and County York Directory for the year. We find that in 1850, the Medical Board being the directorate, medical studies could be pursued at the Toronto General Hospital, among the trustees of which were Dr. King, Dr. Widmer, and Dr. O'Brien; the Toronto School of Medicine, of which Dr. Rolph was the guiding spirit; Trinity College Medical

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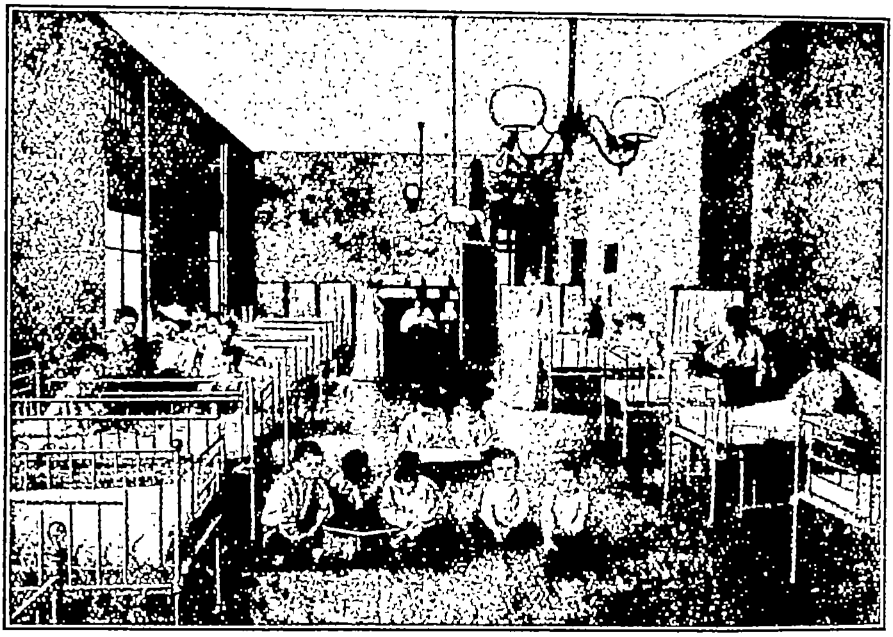
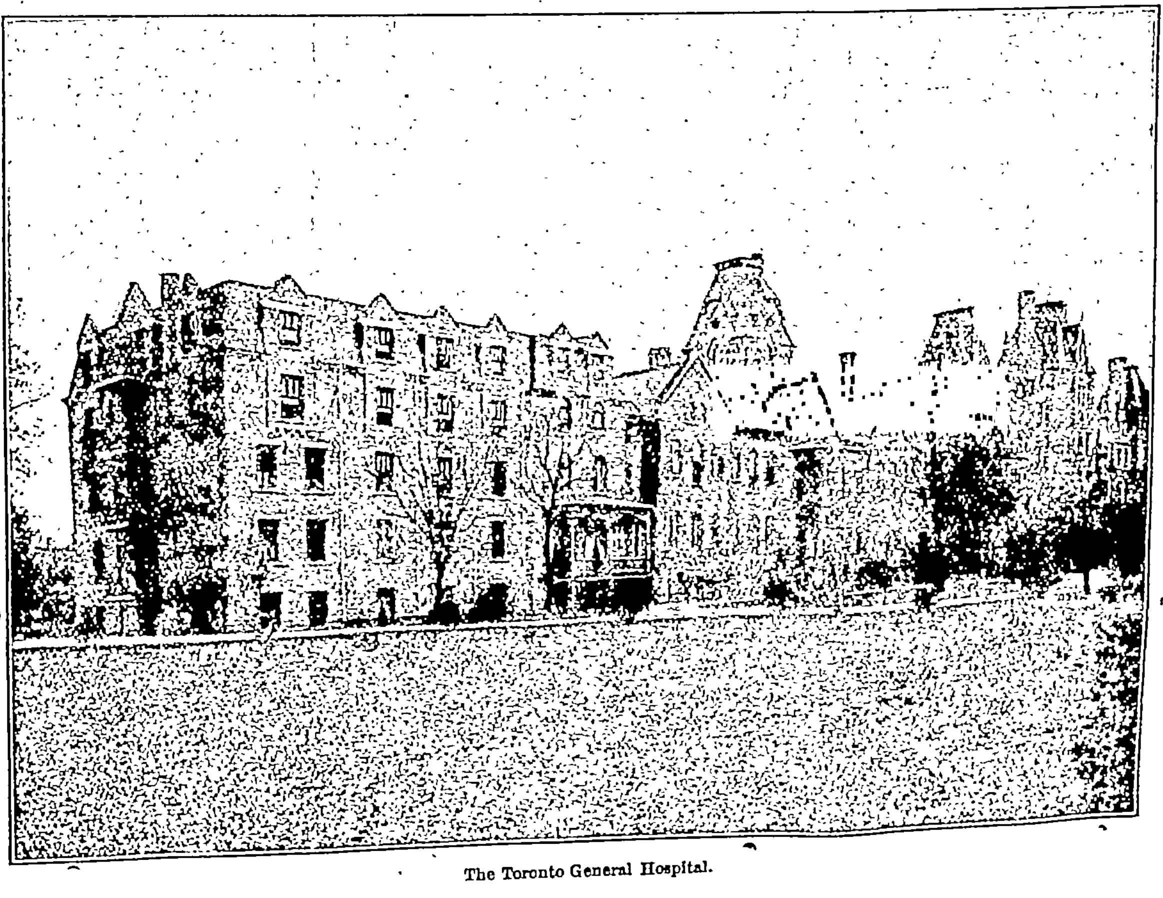
[1] Nos. I. and II. were published in THE LANCET of July 28th (p. 253) and August 4th (p. 331), 1906, respectively.

FIG. 10.



Ward in Sick Children's Hospital.

FIG. 11.



The Toronto General Hospital.

School; Toronto Eye Infirmary; Toronto General Dispensary and Lying-in Hospital, established in 1848 (the first of its kind in Toronto); Provincial Lying-in Hospital and Vaccine Institute; Maternity Lying-in Hospital and General Dispensary; and the Catholic Orphan Asylum. There were also a board of health for Upper Canada and a provincial lunatic asylum.

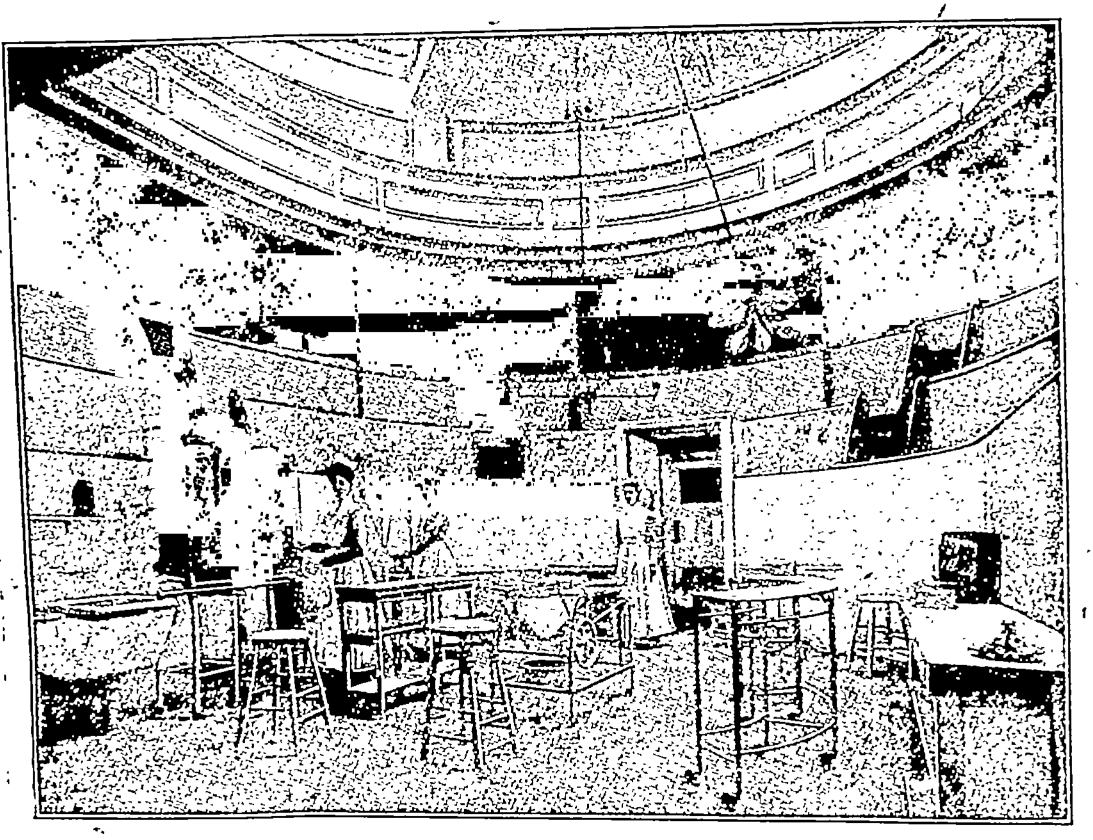
The Toronto General Hospital is described at that time as being 107 feet long by 66 feet wide and two storeys in height, with two other buildings attached thereto for fever patients. The number of patients at that time was said to average 100. Curiously enough, it has not been possible to obtain a picture of the old hospital, but we may be certain it was very different from the imposing building which at present goes under this title (see Fig. 11).

Among the new medical institutions erected since 1850 one of the most deserving of notice is the Hospital for Sick Children. The building used for this purpose is a large one containing 160 beds, and is thus one of the largest hospitals in the world devoted solely to the diseases of children. One block is situated on Toronto Island, in the bay just off the city, and is admirably equipped. The Faculty of Medicine has had for some years the advantage of the splendid opportunities for training in the diseases of children provided by this institution. Resident assistants are appointed annually from the graduates in medicine of the University and hold their position for the year. To Mr. J. Ross Robertson, the author of "Landmarks of Toronto," is chiefly due the existence of this splendid institution. The writer of these articles was taken upon a visit of inspection of this hospital by Mr. Robertson, whose enthusiasm in behalf of the institution was reflected everywhere in the scheme of management and in the domestic details.

There is only one medical college for women in Canada and that is the Ontario Medical College for Women in Toronto, founded in the year 1883. Dr. Michael Barrett, in the University of Toronto at the nsible for its foundation. The formal opening of the Women's Medical College took place on Oct. 1st, 1883. The number of students who have graduated from the college is 112. There are now 32 students in attendance at the college.

Brief mention has been made in a former article of the old General Hospital and we will now describe the present building which took its place. The old Toronto General Hospital was situated in King-street and continued in use until the erection of the present hospital in Gerrard-street, after which the old building was torn down. The second and present hospital occupies a space of four acres, on the north side of Gerrard-street East. The hospital buildings, constructed in a rectangular shape, are 170 feet long with an average width of 120 feet. The main building is built of white brick with stone dressings and is three storeys high, with a central tower 100 feet in height, with smaller towers at each angle of the front elevation. This main building is used for the accommodation of ordinary medical and surgical cases and contains 17 or 18 public wards and several private wards. The operating theatre is in the centre and is flanked on either side by a wing. It is an up-to-date theatre in every way, properly equipped, lighted, and furnished, as may be seen from the subjoined illustration reproduced from a photograph by Dr. Powell. Connected with the main building by bridges are the fever hospital and the Mercer Eye and Ear Infirmary. In the north-west angle of the grounds is the Burnside Lying-in Hospital, which is supported by voluntary contributions, by the fees of students in attendance, and by a yearly Government grant. This building, as well as the eye and ear infirmary and the fever hospital is of the same style and material as the main structure. Between the lying-in hospital and the main buildings is a structure which serves as a resort during the day for convalescent patients and immediately to the east of this are the mortuary, laundry, and other buildings. The wards are roomy and well ventilated, and Toronto has reason to be satisfied with

FIG. 12.



Toronto General Hospital: The operating theatre.

its General Hospital, even while it is obvious that in the near future provision commensurate to the needs of a growing city will have to be provided.

But it has become more and more evident recently that the very rapid growth of the Medical School of the University of Toronto demands greater hospital facilities than have been hitherto available. During the past few years endeavours to grapple successfully with the difficulty have been made from time to time, and much has been accomplished in this direction. Mr Cawthra Mulock's generous gift of £20,000 to the out-patient department has relieved the pressure on that branch of the hospital, and has been followed by a strenuous attempt to raise a sum sufficiently large properly to reorganise the whole institution in such a way that it would amply meet the needs for clinical teaching of the University Medical School. Negotiations with this object in view are at the present time proceeding between the Government and the University, and it is confidently anticipated that the city of Toronto will render substantial aid in order to further this desirable end. From these sources and from private subscriptions there can be but little doubt that the necessary funds will be readily forthcoming. A scheme is afoot, the details of which will be completed shortly, for the provision of a large, modern, and thoroughly equipped hospital which will place the University Medical School in a position to pursue its teaching under the most favourable auspices.

(To be continued.)

Obituary.

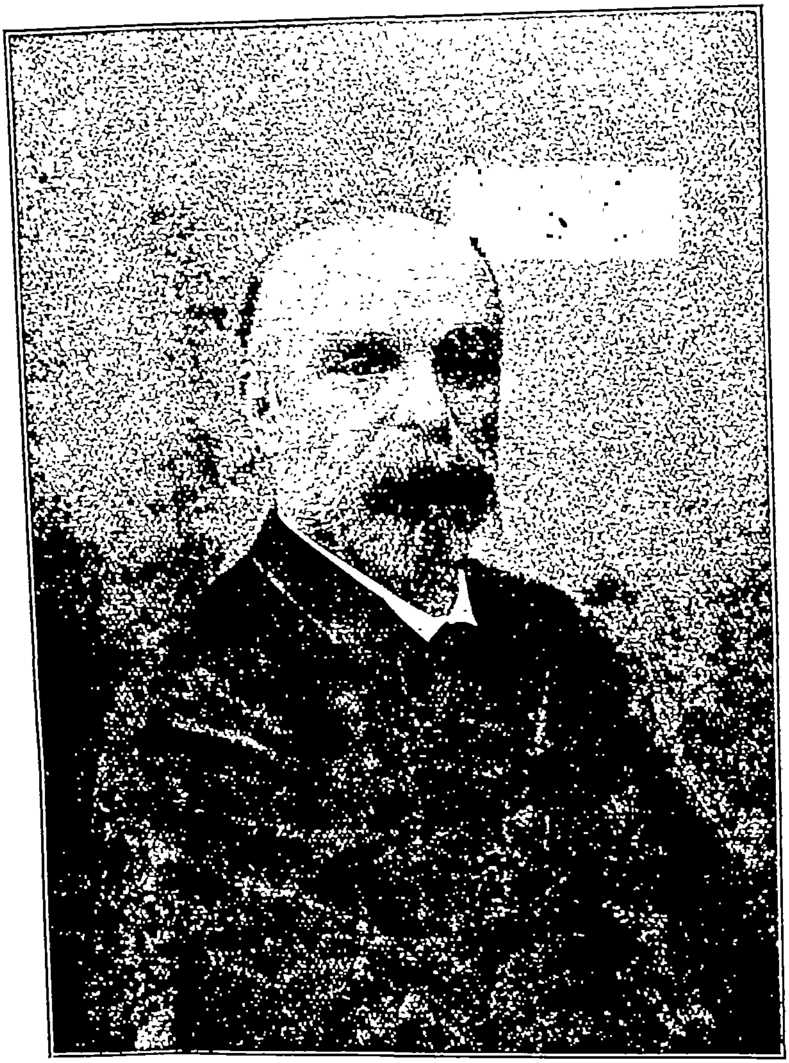
PROFESSOR BROUARDEL.

ONE of the most commanding personalities of French medicine has disappeared owing to the death of Professor Brouardel, whose reputation was spread throughout the world, and whose work and teachings were especially well known in this country which he had visited many times, notably for the British Congress on Tuberculosis held in London in 1901. For 30 years he was among the mouthpieces, and generally he was the chief, of the medical profession of his native country at international congresses, indeed, he represented France officially at almost every congress and meeting held abroad of recent years. His mental activity, which was something extraordinary, found its chief field in questions of legal medicine, hygiene, and medical legislation, on which subjects he wrote many and valuable treatises.

Born at St. Quentin in the department of the Aisne on Jan. 13th, 1837, he studied medicine at the Faculty of Paris, becoming an interne of the hospitals in 1859 and graduating as Doctor of Medicine in 1867. In 1869 he was nominated, at the Concours, physician to the hospitals and a professeur agrégé at the Faculty of Paris. His first wish was to devote himself to pure medicine, for he had been the pupil of Lorain. In this section of medical science he published papers upon Tuberculosis of the Genital Organs of Women (1865); upon Lesions of the Temporal Bone (1866); upon the Conditions of Infection and Propagation of Small-pox (1870); upon the Analysis of the Gases of the Blood (1870); upon the White Corpuscles in the Blood of Small-pox Patients, of the Wounded, and of Women during the Puerperium (1874); upon Vaccination and Small-pox (1869, 1870, and 1874); upon Rabies in Man (1874); upon Glanders and Farcy in Man (1876); and upon Variations in the Quantity of Urea excreted in Maladies of the Liver (1876). In 1877 he published the great work of his master, Lorain, which he had concluded with his own hand, the subject being the Temperature of the Human Body and its Variations in Different Diseases. Soon, however, the study of legal medicine engaged his attention completely. As assistant to Professor Tardieu, who was then the titular head of this department at the Faculty of Paris, he was struck by the insufficiency of the means which then existed for instructing students in this subject, and after the example of Professor Tourdes of Nancy, who made his pupils assist him at post-mortem examinations, he organised at the Paris Morgue classes with practical demonstrations for the students. These classes he continued throughout his life, although the place is damp, very insanitary, and unable to be enlarged because of its site upon a small island in the Seine, while it cannot be transferred anywhere else, for the inhabitants of every quarter of Paris have objected to having a new Morgue in the quarter where they dwell. It is probable that the gradual breakdown in his health took place owing to the insanitary surroundings of the Morgue.

In 1879 Professor Brouardel succeeded Tardieu as professor of the chair of legal medicine and in the same year he was nominated expert in legal medicine to the courts. On him devolved the duty of drawing up all the medical reports for all important trials during the last 30 years, and it will be remembered that he came to Bournemouth in company with Professor Charcot to inquire on behalf of the French Government into the state of health of the well-known Cornelius Herz. The medico-legal reports which he wrote, and of which he published a large number, are models of their class owing to the lucidity of their style, the clearness of their diction, their logic, and the ingenuity of their conclusions. They were published in a special review which he edited under the name of "Annales d'Hygiène Publique et de Médecine Légale." Sundry other publications on the same kind of subject were the following: Studies of Medico-legal Post-mortem Examinations at the Morgue (1878); a Medico-legal Study upon the Combustion of the Human Body (1878); on Rape during Hypnotic Sleep (1879); on Poisoning by Chlorate of Potash (1881); on Causes of Error in Expert Opinions upon Attempts upon Chastity (1884); on Traumatic Diabetes from the Point of View of Medico-legal Expert Evidence (1888); a Medical Study upon the Death of Baron Reinach (1893); and many others of which the enumeration would take up too much space. Besides these he published many volumes upon legal medicine such as the Toxicological Laboratory (1891); the Seal of Medical Confession (Secret Médical) (1893); Death and Sudden Death (1895); Asphyxia by Gases and Vapours (1896); Hanging, Strangulation, and Drowning (1897); Explosions and Explosives from a Medico-Legal Point of View (1897); Infanticide (1897); and Medical Responsibility (1898). All these works, however, which would have reflected credit on any man were only a small part of his labours. In 1886 he was chosen Dean of the Faculty of Medicine of the University of Paris, a post which he filled for 14 years, and during the tenure of which he contributed in a great measure to the reorganisation of medical studies. He was a member of the Council of the University and of the Superior Council of Public Instruction; he was strongly in favour of the creation of an Institute of Colonial Medicine for Paris and of special diplomas for forensic medicine and sanitary medicine. He reorganised the studies in odontology and brought about the creation of examinations for the granting of a diploma of dentistry at the Faculty of Medicine of Paris.

During the latter years of his life, however, the subjects of hygiene and of public health absorbed all his attention. Never an epidemic occurred in France but he was given the duty of investigating it, and his reports upon the following epidemics excited widespread interest: on the Epidemics of Cholera at Marseilles and Toulon (1884); on Sanitation in the Town of Toulon (1885); on the Appearance of an Epidemic of Cholera at Marseilles (1885); on the Epidemic of Miliary Fever (*Suette Miliaire*, Picardy Sweat) in Poitou (1887); and the Origin of Epidemics of Typhoid Fever (1887). Becoming a member of the Consultative Committee of Public Health in 1879 he was president from 1884 to 1903, and upon him devolved the duty of representing France at all the International Conferences of Hygiene at Dresden, Venice, Rome, and Paris. To him as much as to anyone is due the generally recognised view that typhoid fever is mainly a water-borne disease. It was he who drew up the text of the International Regulations for Maritime Sanitation, and it was he also who drafted the Public Health Act of 1902, which is the authority in France for all matters of public health. Brouardel took a great interest in the struggle against tuberculosis and represented France at the congresses on the subject held at Berlin and London, while to him was due the organisation of a scheme for fighting tuberculosis in France by the multiplication of sanatoriums and dispensaries. In this branch of his work he met with great difficulties, for the plan involved enormous expense, and the lengthy periods during which the scheme was in abeyance made it possible to see the results of a similar plan which had been carried through in Germany. From German experience it was evident that the good results



PROFESSOR BROUARDEL.

obtained by sanatoriums were by no means commensurate with the expenses which their construction and upkeep involved and it is possible that France was here no great loser by the checks to Brouardel's energy.

Another portion of Brouardel's life work was devoted to the interests of the medical profession. Thus he was president of the Syndicate of Medical Men of the Seine, of the Union of Medical Syndicates of France, and of the General Association of Medical Men in France, while there were few scientific or professional societies over which he did not at one time or another preside. He was in a way the Pontifex Maximus of French medicine, always considered as the chief by his colleagues and always consulted by the Government as to any question involving medical matters or medical men. No one else in the medical profession played so important a social rôle.

He was a man of prodigious activity and an untiring worker, paying personal attention to the innumerable letters which he was constantly receiving upon all sorts of subjects. Those who came to consult him always retired from the interview satisfied and full of hope, and, a thorough diplomatist, he occupied a very delicate post for many years, although naturally enough he did not succeed in pleasing everyone. Now, at the age of 69 years, he is dead. He died from tuberculous laryngitis which ran a rapid course, and in the treatment of which he displayed but little of the prudence which he would have urged so emphatically upon others. For he had suffered for many years from diabetes and must have known his risks, yet he was continually smoking cigars and refused to abate any of his multifarious activities unless he was absolutely obliged to do so. He was loaded with honours, had been a Member of the Academy of Medicine since 1880, was a Grand Officer of the Legion of Honour, and the recipient of innumerable foreign decorations. He married late in life and had no children, but up to the beginning of this year his aged mother was still alive and happy in the devotion and attention shown her by her son.

EDWARD FRANCIS WILLOUGHBY, M.D. LOND., D.P.H. CANTAB. & LOND., M.R.C.S. ENG.

BY the death of Dr. Edward Francis Willoughby on July 29th, after a brief illness, the medical profession has lost a member who was widely respected for his erudition and esteemed for his personal character. Dr. Willoughby was a native of Warwickshire and a student at University College, London. He became qualified as a Member of the Royal College of Surgeons of England in 1865. In 1869 he graduated as M.B. of London with honours. Soon afterwards he established himself in medical practice in the north of London and continued in the exercise of his profession till his death. In 1881 he added the D.P.H. of Cambridge and of London to his qualifications and became M.D. in 1889. Until almost the day of his death his intellectual activities were many and varied. While keeping himself abreast of the latest advances of medicine he had for many years devoted an increasing measure of attention to questions of public health. He was the author of a "Health Officers' Pocket-book," "Hygiene for Students," and a manual for the farm and laboratory on "Milk." Numerous papers on hygiene or allied subjects flowed from his pen, which was almost never idle during intervals of leisure from professional duty. These appeared from time to time in the "Encyclopædia Medica," von Ziemssen's "System of General Therapeutics," the Transactions of the Epidemiological Society, and our columns. Sometimes he dipped into general literature, as when he edited the Prologue to the "Canterbury Tales." Besides being a member of the British Medical Association he was also on the roll of the Epidemiological Society, the Society of Medical Officers of Health, and the Royal Sanitary Institute, and was honorary medical officer to the Mansion House Council on the Dwellings of the Poor. A good man, an enthusiast in his profession, a scholar, and a gentleman, he will be long remembered by those who have enjoyed the privilege of knowing him.

OSCAR THOMAS WOODS, M.D. T.C.D., L.R.C.S. IREL.

Dr. Oscar T. Woods, medical superintendent of the Cork District Asylum, died on Thursday night, August 2nd, after a protracted illness. The announcement caused sincere regret not alone amongst his medical brethren but also amongst the citizens generally. Dr. Woods was born at Birr, King's County, and was 58 years old at the time of his death. He studied at Trinity College and graduated at the University of Dublin. Soon afterwards he went to England and was appointed medical officer of the Warwickshire Asylum. After holding that position for some time he returned to Ireland and was appointed medical superintendent of the Kerry District Asylum at Killarney. He held that post for 11 years and was then appointed medical superintendent of the Cork District Asylum. During his tenure of office in Cork he effected many improvements in the asylum and was ever most energetic in his efforts to ameliorate the sad lot of the afflicted inmates of the institution. A strict disciplinarian, he was always kind and considerate to all with whom his official duties brought him in contact. Though Dr. Woods's position was a remunerative one it entailed many cares and anxieties. During his 17 years' tenure of office the increase in the number of patients became so great that the accommodation ceased to be at all adequate. Pulmonary tuberculosis became prevalent and Dr. Woods pointed out to his board the dangers likely to occur unless the congestion were relieved. As the result of his representations an auxiliary asylum was recently built at Youghal and some of the comparatively chronic inmates were removed there. A serious outbreak of enteric fever in the Cork Asylum some 12 months ago taxed Dr. Woods's resources to the utmost, and he exhibited much care and discrimination in his endeavours to trace the cause. He always displayed the greatest tact and judgment in the management of the asylum and it was generally recognised that he was a most efficient officer. Alienists recognised his great ability and attainments and in the year 1901 he was elected president of the Medico-Psychological Association of Great Britain and Ireland. During that year the members assembled in congress at Cork and were most hospitably entertained by their president.

WILLIAM JAMES MARTIN, M.D. ST. AND., F.R.C.P. EDIN.

Dr. W. J. Martin, who had been well known in Dublin for the last 50 years, died on August 4th at his residence, 17, Harcourt-street. He was physician to Jervis Street Hospital for a long period, visiting surgeon to the Richmond District Lunatic Asylum, secretary to the Board of Superintendence of the Dublin hospitals, and medical referee to the Sun and other assurance companies. Dr. Martin was very popular and much esteemed by the members of his profession as also by a large circle of friends, to whom the news of his death came as a grievous shock, though he was known to be in delicate health for some time. He was son of the late James Martin of Cappagh, co. Dublin, and brother of the late Sir Richard Martin, Bart.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Albert Voss, director of the Prehistoric Section of the Royal Berlin Museum. He originally practised medicine but early in life his great interest in anthropology and prehistoric science led him to give up the practice of his profession.—Dr. Adolf Witzel, professor of odontology in Jena, aged 58 years.—Dr. Georg Wilhelm August Meyer, formerly director of the Osnabrück Insane Asylum, described in the Germany medical press as the Nestor of German alienist physicians.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Indian Medical Service: Reorganisation Scheme.

THE following alterations of the rules for the allotment of officers by the Indian Medical Service to commands have been published. Prior to 1896 officers were appointed to one or another of the three presidential cadres but since that date officers have been allotted to a military area and have been liable to serve anywhere, though ordinarily employed in the area originally selected by them. This system has resulted in numerous difficulties in arranging transfers, leave, provision of substitutes, and so on. The scheme now is to amalgamate the presidential and general lists and officers will not retain any lien on the areas of their choice except of employment in a civil capacity. Fresh officers will be liable to be sent anywhere for civil employment but will be allowed, according to the requirements of the service, a choice of certain areas. All this means that fresh powers have been given to the heads of the service as against the wishes of the individual officer and that fixity of tenure has been abolished. Fresh officers will be posted to the areas of those military commands in which these officers have expressed a desire to serve. It is difficult to see where the individual officer benefits but it may simplify work at headquarters. The danger is that this new ordinance may lead to undesirable favouritism and patronage.

Some Indian Statistics.

The incorrectness of Indian vital statistics is well illustrated by certain registration returns of two towns in Assam. The birth-rate of this province varied in 1905 from 69·16 at Barpeta to 1·7 at Jhalakati and the death-rate for these two towns was 55·21 and 4·77 respectively. Barpeta is a sacred town to which Hindu women resort. The returns from the other place are unexplained.

Kala-azar in Assam.

The fatal disease of kala-azar seems to be decreasing in Assam, as last year only 3030 deaths were reported, two-thirds of which occurred in the Sylhet and Danang districts.

The Plague Epidemic.

The mortality from plague has now sunk to a few hundreds weekly. Burma heads the list for the week ending July 7th with 243 deaths, the Punjab comes next with 155, the Bombay Province returned 149, Bengal 25, Mysore 19, United Provinces six, and Madras five. The latest destroyer of the rat flea is notified to be crude petroleum. This substance seems effective against the flea but has no power over the plague bacillus. One advantage it possesses is in its cheapness. It is of more importance, however, to kill the rat than the parasitic flea. In the Punjab the people have come to recognise the dangers attached to the rat and are killing these pests freely and of their own accord. In Bombay poison has been largely employed and about 200,000 rats are said to have been destroyed in the year. For this result over 1,000,000 baits were laid down. It is stated that a female rat will produce about 50 young each year, but upon this point more evidence is wanted. The periodicity of plague outbreaks has not yet been explained and it is not yet known whether this character is dependent upon conditions affecting the bacillus, the flea, or the rat.

The Spread of Cocaine Eating in India.

The habit of taking cocaine, which has produced such disastrous results in certain towns of India, is unfortunately spreading widely. Recently in the neighbourhood of Delhi and in certain native States the habit has been contracted, and the Punjab Government, following the example of the United Provinces and Burma, proposes local legislation to amend the Excise Act so as to get fuller powers of dealing effectively with the sale of this drug.

July 21st.

Medical News.

UNIVERSITY OF EDINBURGH.—The following is the official list of passes at the recent professional examinations for degrees in medicine and surgery:—

First Professional Examination.—T. A. Adams, Peter Allan, Alexander Archibald, O. H. Blacklay, Robina Blackwood, H. R. Borcherds, G. S. Brock, W. D. Brownrigg, Gilbert Burnet, J. le F. C. Burrow, Andrew Campbell, A. D. Campbell, T. F. Craig, W. A. Dunn, T. E. Evans, A. J. Ewing, M.A., A. G. Forbes, T. E. Forrest, A. S. Glynn, Christopher Gordon, G. M. Graham, A. L. Grant, Max Greenberg, J. D. Gunn, B.A., T. E. Harwood, B.A. (with distinction), John Hepburn, W. R. C. Heslop, D. van V. Hoffman, A. J. G. Hunter, C. C. Iles, G. L. W Iredale, W. D. Kirkwood, J. St. P. Knight, James Lamberton, J. P. Litt, J. M. Logie, F. R. Lucas, W. O. Lyons, D. J. M'Afee, W. V. Macaskie, H. J. M'Caw, A. E. P. M'Connell, Marion I. A. Macintyre, A. E. Mackenzie, J. M. Mackinnon, P. W. Maclagan, K. A. Maclean, Lorna D. M'Lean, William M'Naughton, N. F. Mann, A. M. Masters, S. N. Mokand, D. O. Monro, B. B. Morgan, A. A. Morison, D. M Morison, T. C. Murphy, J. M. Murray, W. P. Murray, P. J. Olivier, H. G. Parker, C. R. Patton, J. F. Penman, Stanley Pinion, A. N. Pollock, A. W. Rattrie, H. C. Robins, Christopher Rogers, T. R. Sandeman, W. A. Shafto, Samuel Sloan, A N. Smith, K. F. Sonntag, N. W. Stevens, John Stevenson, George Sutherland, R. J. Tait, H. C. Todd, J. A. Tomb, R. R. Watts, W. L. Webster, H. J. G. Wells, R. A. C. Wilkes, S. H. Wilkinson, H. T. Williams, and N. C. Young.

Second Professional Examination.—A. H. T Andrew, B. S. Browne, J. A. Browne, J. E. Brydon, Henry Burns, H. G. Carter, Jean G. Cathels, J. J. P. Charles, D. D. Craig, Fred. Dillon, W. J. Duncan, Helen Forbes, Kenneth Fraser, W. T. Gardiner, P. J. Garvey, Alexander Gibson, M.A. (with distinction), H. R. B. Gibson, A. T. Gowan, W. B. Grant, F. W. Greaves, J. A. W. Hackett, R. W. Hauman, Herbert Hutson, H. E. Johnson, James Langwill, J. M. Lawl, A. J. Bruce Leckie, A. R. Leggate, Edward Lewis, V. D. O. Logan, J. C. Lorraine, J. V. MacDonald, G. Mc Mackay, Ian C. Mackenzie, D. L. MacKenna, A. K. Maclachlan, Eva Meredith, J. B. de W. Molony, Anna L. Muncaster, N. S. Neill, C. T. Newton, J. H. Peck, Alfred R. Price, K. A. Rahman, Myfanwy D. Rees, E. M. Reid, F. E. Reynolds, M. B Smith, H. M. Spoor, J. W. Stirling, D. E. Stodart, E. A. Strachan, D. R. P. Walther, John Ware, W. S. Watson, Gordon Wilson, and G. G. Wray.

Second Professional Examination (Old Regulations).—S. Rowland.

Third Professional Examination.—G. J. Adams, C. F. Bainbridge, J. P. Berry, Mary F. Bignold, H W. Binks, F. V. Nanka Bruce, E. A. Brummitt, R. A. Campbell, Theodore Craig, F. W. M. Cunningham, C. H. Derksen, Thomas Derrick, C. A. A. Dighton, V. Lloyd Evans, S. B. Faulkner, T. Y. Finlay, Stephen Forrest, M.A., David Geddes, G. R. Gray, J. G. Greenfield (with distinction), J. A. Harley, F. G. Harper, A. M. Hewat, J. M'A. Hill, W. P. Holden, M. J. Johnston, W. L Johnston, Catherine Kirk, M.A., R. H. S. Langeveldt, A. F. Lee, G. H. Lowe, John Macdiarmid, L. R. H. P. Marshall, C. J. van der Merwe, Barbara Richardson, W. G. Riley, A. H. M Robertson, W. A. Robertson, R. L. Scott, Thomas Smyth, L. D. Stephen, Alice M. Thompson, H. B. Thomson, A. L. Thornley, Lydia K. Towers, A. E. Turnbull, V. A. Vijayakar, R. N. Wallace, W. H. te Water, W. C. Whiteside, and J. L. Masterman Wood.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Gelpke has been recognised as *privat-docent* of Surgery; Dr. A. Labhardt as *privat-docent* of Midwifery and Gynæcology; and Dr. E. Oppikofer as *privat-docent* of Oto-Rhino-Laryngology.—*Bordeaux:* Dr. Denucé, *agrégé*, has been appointed Professor of the Surgical Diseases of Children in succession to the late M. Piéchaud.—*Christiania:* Dr. Kristian K. H. Brandt has been appointed to the chair of Medicine.—*Copenhagen:* Dr. S. Monrad has been appointed Lecturer in Children's Diseases. Dr. Erlandsen has been recognised as *privat-docent* of Internal Medicine.—*Göttingen:* Dr. His of Basle has accepted the invitation to succeed Professor Ebstein. Dr. Th. Lochte of Hamburg has been offered the chair of Forensic Medicine in succession to the late Dr. Stolper.—*Halle:* Dr. Friedrich Fromme has been recognised as *privat docent* of Midwifery and Gynæcology.—*Heidelberg:* Dr. Richard Werner has been recognised as *privat-docent* of Surgery. Dr. Völker has been granted the title of Extraordinary Professor.—*Kiel:* Dr. Ernst Ziemke of Halle has been appointed Extraordinary Professor of Forensic Medicine.—*Königsberg:* Dr. P. Stenger, *privat-docent* of Otology, has been granted the title of Professor.—*Leipsic:* Dr. Heinrich Klien has been recognised as *privat-docent* of Neurology and Psychiatry.—*Marburg:* Dr. Arthur Heffter of Berne has been appointed to the chair of Pharmacology.—*Montpellier:* Dr. Gervais de Rouville, *agrégé*, has been appointed Assistant Professor.—*Munich:* Dr. Ernst Heilner has been recognised as *privat-docent* of Physiology.—*Nancy:* Dr. Guilloz, *agrégé*, has been appointed Assistant Professor.—*Naples:* Dr. Giuseppe Evoli and Dr. Pasquale Pezzullo have been recognised as *privat-docenten* of Internal Pathology.—*Paris:* Dr. Albarran, *agrégé*, has been appointed Professor of the Diseases of the Urinary Passages in succession to M. Guyon. Dr. Thoinot, *agrégé*, has been appointed Professor of Forensic Medicine in succession to the late M. Brouardel.—*Prague (Bohemian University):* Dr. Haskovec, *privat-docent* of Neuropathology, Dr. Weigner, *privat docent* of Anatomy, and Dr. Srdinko, *privat docent* of Histology and Embryology, have been promoted to Extraordinary Professorships. (*German University*): The selections for the chair of Pathological Anatomy are—(1) Dr. Kretz of Vienna and Dr. Kaufmann of Basle (equal); (2) Dr. Dürck of Munich; and (3) Dr. Heinrich Albrecht, Dr. Anton Ghon, and Dr. Friedrich Schlangenhaufer, all of Vienna.—*Rome:* Dr. Salvatore Ottolenghi, Extraordinary Professor of Forensic Medicine, has been promoted to be Ordinary Professor.—*Rostock:* Dr. Otto Büttner, *privat-docent* of Midwifery and Gynæcology, has been granted the title of Professor.—*Strasburg:* Dr. Oscar Römer, *privat-docent* of Odontology, has been promoted to an Extraordinary Professorship. Dr. Wollenberg of Tübingen has accepted the invitation to the chair of Psychiatry. Dr. Ulrich, Extraordinary Professor of Ophthalmology, is retiring.—*Toulouse:* Dr. Cestan, *agrégé*, has been appointed Professor of Clinical Surgery.—*Turin:* Dr. Camillo Magnani has been recognised as *privat-docent* of Ophthalmology.—*Vienna:* Professor Benedikt, Professor Politzer, Professor von Stoffella, and Professor Winternitz are all retiring.—*Würzburg:* Dr. Martin Reichhardt has been recognised as *privat-docent* of Psychiatry.

VACATION SCHOOL AT PASSMORE EDWARDS SETTLEMENT.—This school, only open during the month of August, is now in the fifth year of its existence and has already found successful imitators at Stratford, Walworth, Camberwell, and Hoxton, whilst similar schools are being opened in Leeds, Hull, Sheffield, and Liverpool. The scheme, originally copied from the United States, is likely to spread, for one of the only clauses of the present Education Act which proved to be non-controversial gives permission to local authorities to open vacation schools and provide some financial support. In the case of this pioneer enterprise application forms are sent to 12 schools in the neighbourhood of the Settlement, which has a permanent building in Tavistock-place, and it is laid down very clearly that the object of the school is for those children who are unable to go into the country during the holiday month of the schools. Four years ago the number of children on the first day was 380; this year the number has risen to 950. The cost works out at 1*s.* 6*d.* per child per week, the chief expense being £226 for salaries for the director, 24 teachers, and two accompanyists. The discipline is excellent and the arrangements are cleverly perfected by making the children assemble every 35 or 70 minutes at the end of a lesson in a central courtyard, where each child knows his or her place and marches off with a fresh teacher to a change of play-work. The classes do not exceed about 30 boys or girls and there are morning and afternoon sessions for different children. Those who may have forgotten our previous notes on this subject should be reminded that these vacation schools are chiefly intended to teach children how to play, how to occupy themselves, and to provide some recreation other than that usually enjoyed in the London streets. But great care is necessary to prevent the demon of "nervous strain" being introduced and therefore all subjects of the usual school curriculum are strictly banished. The present course consists of carpentering, cardboard modelling, basket work, musical drill, organised games such as basket ball, gymnastics, dancing, singing, clay modelling, drawing, brushwork, doll dressing, knitting, story-telling, nature study, and housewifery, which includes the laying of a table, making beds, and washing a baby. Both boys and girls seem to love the cookery lessons, which include various methods of using up stale bread and cold meat, boiling vegetables, preparing lemonade, jam puffs, sausage rolls, rock cakes, scones, and plum dumplings, besides chopping suet, cleaning utensils and knives. Then there is the preparation for washing-day, washing and boiling white clothes, and ironing and folding aprons and kitchen cloths. For the smallest children there are ordinary kindergarten games, bubble blowing and sand digging, and, thanks to the Duke of Bedford many of these classes are held in the garden adjoining the Settlement. This year two new classes have been opened, one in which a shoemaker teaches boys how to cobble their shoes and the other in an open air gymnasium provided by the liberality of the Duke. We visited the class-rooms at the end of a hot day and were pleased to find the windows open and a complete absence of human odour. Among side shows visits are paid to the Zoological Gardens and sketches are there made of the animals from life; both sexes visit the swimming baths and the elder boys get instruction in cricket in the playground of one of the neighbouring council schools. It is obvious that much physical benefit is derived from this month's occupation and anyone who has witnessed the delighted keenness of the children and the enthusiasm of the teachers can hardly doubt the success of the endeavour. Mrs. Humphry Ward has so far been fortunate in securing the instructors who have more than one month's holiday in the year and can therefore afford time, as one of them expressed it, to renewed study of the life of children.

DONATIONS AND BEQUESTS.—The late Mr. Charles Thornton, barrister, has bequeathed £1000 to the London Hospital, £1000 to the Victoria Hospital for Children, Chelsea, and £500 to the After-care Association.

PRESENTATION TO A NURSE.—Lord Methuen, as chairman of the committee of management of King's College Hospital, recently accompanied a small deputation upon a visit to Miss K. H. Monk at Brighton, for the purpose of presenting her with a testimonial on her retirement from the post of sister-matron, after 23 years of service to the hospital. The testimonial consisted of a purse of money subscribed for by over 500 friends and past and present members of the committee and medical and nursing staffs of King's College Hospital.

LITERARY INTELLIGENCE.—As the result of investigations extending over a period of many years, with the aid of expert assistance, Sir Almroth E. Wright has written a book which Messrs. Archibald Constable will shortly publish, and which should have a marked effect on the results obtainable by all students using the microscope. The object of the book is to show how best to get from any class of instrument the highest degree of satisfaction in proportion to its range. The text of the book goes hand-in-hand with experiments and the work also contains a complete vocabulary of technical terms relating to the microscope.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 1ST.

The Home Office and Anthrax.

IN the debate on the report stage of the Home Office vote some references were made to the numerous deaths from anthrax. Mr. GLADSTONE stated that the number of deaths in 1900 was 37; in 1901, 39, and in 1902, 38. There was a jump up in 1903 to 47, in 1904 to 50, and in 1905 to 59. This progressive rise was receiving the grave consideration of the Home Office. It had been suggested as a remedy that the imported wool which harboured the germs of the disease should be dealt with at the port of landing; but the wool was imported in large quantities, made up in bales, and to have it unpacked on landing would mean the placing of a very heavy tax on the trade. In the meantime, however, a special committee of investigation had been appointed in Bradford, with a Government subsidy, and he was informed that there were real hopes by means of a chemical process of a remedy being found. If, however, wool containing these spores in dangerous quantity did not yield to treatment the only remedy would be to exclude the wool altogether.

The Lunacy Commission.

Another subject raised on the same report was the position of the Lunacy Commission. Mr. G. J. COOPER urged that the number of Commissioners should be increased. The Board as at present constituted was unable properly to discharge its duties. There were six Commissioners, three barristers and three medical men. On the work of inspecting lunatic asylums they went in pairs, a legal member always accompanying a medical member. But if all the lunatics in the asylums were examined each pair of Commissioners would have to examine 39,943 in the year. It was physically impossible that they could do so and determine whether anyone was wrongly detained in an asylum. He further complained of the growing tendency to send aged people into asylums. In 1903–04 1445 people over 70 years of age were sent into asylums as lunatics who were merely suffering from senile degeneration. The whole of these people ought to have been kept in the workhouse. He had heard it stated that if the rich were treated as these poor people were one-third of the members of the House of Lords would die in a lunatic asylum. The knowledge of the essential nature of insanity and its causes was not much better to-day than it was a hundred years ago and until a more scientific investigation into the cause of brain disease was made there would be no better means of cure forthcoming. It would be well if the Home Secretary were to make inquiries as to the working of the receiving-house system which had been adopted by lunacy authorities in Scotland and in America.—Mr. GLADSTONE, in reply, pointed out that in regard to lunatic asylums he had a mere shred of responsibility. He passed the plans and sanctioned the estimates; the county councils built the asylums; the Local Government Board sanctioned the loans, and the Lord Chancellor appointed the Commissioners in Lunacy. An inquiry into the whole system of inspection, which was antiquated and absurd, was desirable. It should be borne in mind, however, that the Commission on the Feeble-minded was about to report, and that this report would deal with lunatic asylums, and when it was received the Government would consider whether any, and if so what, action was desirable.

Provision of Food for School Children.

Dr. MACNAMARA asked the President of the Local Government Board whether he could now give any information as to the working of the Local Government Board Order of May, 1905, respecting the coöperation of boards of guardians in the work of providing food for children in attendance at public elementary schools suffering from lack of food.—Mr. JOHN BURNS answered: The Local Government Board obtained from its inspectors some information on this subject in March last, from which it appeared that in some populous districts, such as the large Lancashire and Yorkshire unions, a good deal of work has been done under the Order, but that elsewhere the cases relieved under the Order had not been very numerous. In the eastern counties no relief under the Order had been found necessary except at Norwich. In Birmingham, shortly after the Order came into force, the guardians were informed by the local education committee that there were 2600 underfed children in the parish and that they were being supplied with free meals. Numerous applications were made by the head teachers to the relieving officers on behalf of children under their care, but when inquiries were made as to the circumstances of the parents of these children it was found that in many cases the guardians would not be justified in granting relief under the Order. The largest number of children on any one day to whom meals have been supplied by the guardians under the Order was 482. At Bristol the guardians made arrangements with the local education authority to obtain the assistance of a local society interested in the welfare of children. The first list sent in by the teachers specified 74 children as being underfed by reason of parental neglect, but inquiry by the relieving officers showed that only in one case would the guardians be justified in giving relief. Up to the end of January the names of 55 children were submitted as coming within the Order but in only 11 cases was relief given. Thus out of 129 applications only in 12 instances did the guardians feel justified in giving relief. In Cheshire, Salop, &c., 27 cases were relieved—viz., two at Birkenhead, three at Bucklow, eight at Congleton, four at Stoke-on-Trent, and ten at Wolstanton and Burslem. In several unions, however, voluntary funds were started and thus children were relieved and kept off the rates. At Derby there were 127 applications and 17 children were found to be underfed. In Nottingham there were 107 applications and 51 relieved. In Leicester there were over 400 applications but in no case was relief found to be necessary. In the township of Manchester 120 cases were relieved, about 380 in Chorlton, and many in Prestwich. The operation of the Order in Lancashire was mainly restricted to the neighbourhood of Manchester and Bolton. As regards the East and West Ridings of Yorkshire, there were 2586 cases in Bradford, 375 parents of 1073 children were notified that relief was given on loan, and 50 parents were proceeded against for recovery of the cost. Of the 2586 cases 1513 were fed by the guardians on behalf of the education authority which administered a fund raised by the mayor. In Leeds 500 cases were fed at the cost of a voluntary fund. 110 cases were fed at first in Hunslet but the number was afterwards reduced to 30. In Bramley the guardians fed 291 and a voluntary fund 2523 cases. In London, generally speaking, very few cases were relieved under the Order, but in some ordinary poor relief was granted and in others food was provided by school children's meals associations from moneys voluntarily contributed.

Tuberculosis in Ireland.

Mr. FETHERSTONHAUGH asked the Chief Secretary to the Lord Lieutenant of Ireland whether the Irish Government had directed its attention to the circumstance that the increase of tuberculosis in Ireland had followed on the increased use of low-class American bacon, believed by many people to be the flesh of tuberculous swine; and whether as there was no Government inspection of possibly tuberculous meat at the ports of entry he would consider the advisability of issuing a circular to the various public health authorities in Ireland, calling their attention to the danger to health arising from the consumption of meat infected with the bacilli of tuberculosis and the necessity for vigilance of their inspectors in preventing unsound meat from being exposed for sale.—Mr. BRYCE replied: The entire question of the importation of food, which affects the United Kingdom generally, has been under the consideration of the Government, and my right honourable friend the President of the Local Government Board has introduced a Bill dealing with the matter. I refer to the Public Health (Regulations as to Food) Bill, which is down for second reading on Oct. 23rd.

Report of the Royal Commission on Tuberculosis.

Mr. FIELD asked the President of the Local Government Board whether he could state when the report of the Royal Commission on Tuberculosis would be issued; and whether it was intended to make a definite statement regarding the communicability of bovine tuberculosis to man.—Mr. JOHN BURNS answered: The Royal Commission hoped that the report which it proposes to issue would have been published before the adjournment, but it now finds that it will not be practicable to issue it before October. It thinks that it is necessary to include in the appendix a larger amount of experimental detail than it anticipated and to confirm certain important facts by additional experiments which are still under observation. I understand that a definite statement on the communicability of bovine tuberculosis to man will be made in the report.

Poor-law in Ireland and the Medical Profession.

Mr. O'SHEE asked the Prime Minister what were the reasons why he declined to recommend the appointment of an Irish medical man on the Royal Commission on the Poor-law to fill the vacancy created by the death of The O'Conor Don, and whether, as the Irish medical profession was vitally concerned in the investigations of the Royal Commission so far as regards Ireland, he would reconsider the matter.—Sir HENRY CAMPBELL-BANNERMAN answered: I do not see my way to reconsider this matter in the sense desired by the honourable Member. The selection of members of Royal Commissions is governed by general considerations and in any fresh appointment that may be made to the Royal Commission on the Poor law the honourable Member may be sure that regard will be had to the Commissioner's qualifications for dealing with the Poor-law as it is administered in Ireland. It does not follow that because Irish Poor-law medical officers are interested in the inquiry the appointment of an Irish medical gentleman would necessarily be the most fitting to make.

THURSDAY, AUGUST 2ND.

Poor-law in Ireland and the Medical Profession.

Captain CRAIG asked the Chief Secretary to the Lord Lieutenant of Ireland whether, in view of the great importance of the subject to the whole of Ireland, he would see his way to reconsider his decision regarding the constitution of the Irish Poor law Commission and appoint to it an independent member of the medical profession who was thoroughly conversant with the whole principles, honour, and interests of the Poor-law medical profession in Ireland.—Mr. BRYCE replied: The honourable Member is under a misapprehension. No vacancy exists in the Irish Poor-law Commission, which has now practically completed its labours. The vacancy which the honourable gentleman has in mind is in the Royal Commission on the Poor-law for the United Kingdom, and, as to that, I would refer him to the reply given by the Prime Minister yesterday to the question of the honourable Member for West Waterford.

FRIDAY, AUGUST 3RD.

Sleeping Sickness.

Mr. CATHCART WASON asked the Under Secretary of State for the Colonies whether, in view of the fact of the sale of Government House at Entebbe, the ravages of sleeping sickness, the insufficiency of the water-supply, fever, and the general unsuitability of the district adjoining the lake, he would before expending public money in the erection of a new Government House consider the advisability of removing the seat of Government, temporarily at any rate, to the Kampala district where the tsetse fly and sleeping sickness are unknown; and whether he would, in view of the importance of the East Africa and Uganda Protectorates, endeavour to pay, himself, a visit to the country.—Mr. CHURCHILL answered: With regard to the first part of the honourable Member's question I would refer him to the reply which I gave to his question of July 19th. The Secretary of State is communicating with the Deputy Commissioner of Uganda and Dr. Moffat on the question of the desirability of removing the seat of Government in Uganda to Kampala and when their replies have been received the whole matter will be carefully considered in consultation with the Commissioner. With regard to the second part of the honourable Member's question I should particularly desire to pay a visit to the East Africa and Uganda Protectorates if the Secretary of State were to consider that I could be spared from my duties in the House of Commons. But in view of the occurrence of an autumn session I fear my wish is hardly likely to be realised this year.

SATURDAY, AUGUST 4TH.

The Government and Vaccination.

Answering a question raised in the general debate on the motion for the holidays Mr. GLADSTONE admitted that the law in regard to vaccination exemption certificates was not in a satisfactory condition. He should be glad to see it altered. The whole question of the administration of the Act of 1898 was under the consideration of the President of the Local Government Board.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BOTHAM, R. H., M.R.C.S., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Staindrop District of the county of Durham.

CRISP, JAMES ELLIS, M.R.C.S., L.S.A., has been re-appointed Medical Officer for the Lacock district by the Chippenham (Wiltshire) Board of Guardians.

HILL, WALTER JAMES, L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer of Health of Clevedon (Somerset).

HUGHES, PERCY T., M.B., C.M. Edin., D.P.H., has been appointed Medical Superintendent to the Worcester County Asylum, Barnsley Hall, Bromsgrove.

MACLEAN, ALICE W., M.B., Ch.B. Glasg., has been appointed House Surgeon at the Chorlton-upon-Medlock Dispensary, Manchester.

PHILLIPS, H. J., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Medical Officer to the London Open-air Sanatorium, Pinewood, Wokingham, Berks.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with board and residence.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

BUXTON, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Registrar (Honorary).

CHELTENHAM GENERAL HOSPITAL.—Junior House Surgeon, unmarried. Salary £80 per annum, with board and lodging.

CHESHIRE, CROSSLEY SANATORIUM, Delamere Forest.—Assistant Medical Officer. Salary £50 per annum, with board, apartments, and laundry.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Senior House Surgeon. Salary £120 per year, with board, apartments, and laundress.

COTFORD, TAUNTON, SOMERSET AND BATH ASYLUM.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, and attendance.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, lodgings, and laundry.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £140, rising to £180, with board, lodging, &c.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer for the Casualty Department for six months, renewable. Salary at rate of £100 per annum, with luncheon.

EAST SUFFOLK AND IPSWICH HOSPITAL.—House Surgeon. Salary £50 per annum, with board, washing, and residence.

EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION.—Professor of Midwifery and Gynaecology. Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

GORDON HOSPITAL FOR FISTULA, &c., Vauxhall Bridge-road, S.W.—Resident House Surgeon.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £100, with board, &c.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—Two House Surgeons and a House Physician. Salary £80 each per annum, with residence and maintenance.

LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

LONDONDERRY AND NORTH-WEST OF IRELAND EYE, EAR, AND THROAT HOSPITAL.—Honorary Surgeon.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, ST. MARY'S HOSPITALS, Whitworth-street West, and Clifford-street.—House Surgeon. Salary £70 per annum.

MIDDLESEX HOSPITAL, W.—Second Assistant to the Director of the Bacteriological and Clinical Laboratories. Salary £100 per annum.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

NEWCASTLE-ON-TYNE, HOSPITAL FOR SICK CHILDREN.—Assistant Honorary Surgeon.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary £70 per annum, with board, residence, and washing.

NORTHAMPTON GENERAL HOSPITAL.—House Physician, unmarried. Salary £90 a year, increasing to £100, with apartments, board, washing, and attendance.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Physician, House Surgeon, and Junior House Surgeon. Each for six months, and unmarried. Salary of two former at rate of £80 and of latter at rate of £40 per annum, with board, &c.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer, unmarried. Salary £130, with board, residence, attendance, and washing.

ST. HELENS COUNTY BOROUGH.—Assistant Medical Officer (female). Salary £160 per annum, rising to £200.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 per annum, with board and lodging.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with rooms, board, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

WORCESTER COUNTY AND CITY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Stanford-le-Hope, in the county of Essex.

Births, Marriages, and Deaths.

BIRTHS.

HAYWARD.—On August 2nd, at The Grange, Wimbledon, the wife of John A. Hayward, M.D., F.R.C.S., of a daughter.

MOON.—On August 5th, at High Beach, Victoria-parade, Broadstairs, the wife of E. G. Moon, M.R.C.S., L.R.C.P., of a daughter.

OSBORN.—On August 7th, at Ennismore House, Dover, the wife of Francis Arthur Osborn, of a son.

PASSMORE.—On July 31st, at Felbrig, Carshalton, Surrey, the wife of William Henry Passmore, M.R.C.S., L.R.C.P., of a daughter.

ROBERTS.—On July 23rd, at Sion Hill, Garstang, the wife of Henry Roberts, M.D. Brux., M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

BAKER—MACKIE.—On July 26th, at Esher parish church, Captain W. Lincoln Baker, R.A.M.C., Aldershot, to Mary Yeats, elder daughter of the late T. Mackie, of Great Western Estate, Ceylon, and Mrs. Mackie, Lisleworth, Esher, Surrey.

ST. JOHN—NORBURY.—On August 1st, at the parish church, Eltham, by the Rev. Elphinstone Rivers, Vicar of Eltham, and the Rev. A. E. Robie, D.D., Headmaster of Eltham College, assisted by the Rev. A. G. Hodgson, M.A., Alexander Story St. John, L.R.C.P., M.R.C.S., of Eltham House, Eltham, youngest son of the late Colonel F. C. St. John, Indian Staff Corps, to Mabel Eleanor, third daughter of Inspector-General Sir Henry F. Norbury, K.C.B., M.D., F.R.C.S., R.N., Hon. Surgeon to the King, and of Lady Norbury, of St. Margaret's, Eltham.

DEATHS.

HUDSON.—On August 6th, at Cork-street, London, John Hudson, M.D., in his 83th year.

NORCOTT.—On August 4th, at Grosvenor hill, Wimbledon, William Doyle Norcott, M.R.C.S. Eng., aged 86 years.

RICHMOND. On August 7th, at 11, Vicarage-road, Handsworth, James Richmond, M.D., D.P.H.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CONCERNING BODIE.

"DR." Bodie, who, like his fellow quack, "Professor" Richard, claims to cure the lame and the halt by electricity, has recently come within the clutch of the law. At the Bradford City police court on July 19th he was fined 2s. 6d. with 10s. costs, or seven days' imprisonment in three cases respectively, for having committed breaches of the Employment of Children Act, 1903. The prosecution was undertaken by the health committee of the Bradford corporation at the instigation of Dr. W. Arnold Evans, the medical officer of health. Of the three children, two said that they had gone on the stage to thank Bodie for having cured them. The third, John Moriarty, said that he had received 1s. on a Thursday night and 3d. on the following night. Inspector Smith said that this last boy apparently had electricity passed into his leg, after having the joint of his ankle broken down. He then walked off the stage. What Bodie's apparent "cures" mean was well shown in the course of the trial of a man named Ernest Miller, a cripple, who was sentenced at the Clerkenwell sessions on May 22nd to 18 months' hard labour for stealing. It came out in evidence that Miller used to pose as one of Bodie's cures, but after being "cured" one night he appeared as much worse the next night and was "cured" again.

As pertinent to the above case we see that Bodie brought an action against Mrs. Hudson of Leeds for slander in that she asserted at the annual meeting of the Leeds Invalid Children's Aid Society that Bodie had paid money to the parents of the children who had been taken to the Tivoli Music Hall for treatment. The jury returned a verdict for Bodie with one farthing damages. In the course of the trial Bodie's manager denied that money had ever been given to either parents or children for their attendance on the stage. We direct the manager's attention to the evidence of John Moriarty at the Bradford city police court given above.

Mr. Justice Grantham, in the course of the action for slander at Leeds, is reported as saying "that the question was whether anyone had the right to accuse him (Bodie) of being a rank impostor and absolute lying." We presume that Mr. Justice Grantham was not aware of the evidence given by the police at Clerkenwell sessions in May.

THE SEXUAL PROBLEM.

To the Editors of THE LANCET.

SIRS,—The interesting contribution in THE LANCET of July 28th, p. 259, on "Professor August Forel on the Sexual Problem" reminds me that Professor Forel, who is professor of psychiatry at Zürich University, has issued his views in book form, "Die Sexuelle Frage," published by E. Reinhardt, Munich, 1905. This book is a forcible contribution to the physiology of the relation of the sexes and of the evolution of an improved race which, although wholly opposed to the trend of English opinion, might be acceptable to those of your readers who read German and have had their curiosity whetted by the extracts given by you. I am, Sirs, yours faithfully,

Leyton, Essex, July 31st, 1906. N. CAMPBELL, M.B., D.P.H.

"NOBLESSE OBLIGE."

IN our last issue under this heading we quoted an appeal by the Honourable E. Pomeroy in which he remarked that "No Doctor has yet refused to Vaccinate with the stuff guaranteed pure by the Local Government Board." With fine impartiality the Honourable E. Pomeroy now in the *Morning Leader* of August 3rd and August 4th issues the appeal which we give below:—

To DOCTORS.—No. II.

Vaccination has never been defined (see "Jenner and Vaccination," by Charles Creighton, M.D.).

The stuff issued by the Local Government Board, and called Calf Lymph, Pure Calf Lymph, Glycerinated Calf Lymph, &c., is *not* guaranteed pure by the Local Government Board.

Some scores of London children are annually either impaired for life or put to death by vaccination with the stuff *not* guaranteed by the Local Government Board.

Will any London doctor refuse to operate with the stuff *not* guaranteed pure by the Local Government Board? It is difficult to see in what way the white liquid secreted by grown-up calves for the nourishment of their young fails to answer the desideratum of pure calf lymph. Will any London doctor make use of some such pure calf lymph as is suggested and provide the usual certificates? If so, will he kindly communicate with the Hon. E. Pomeroy, 6, Campden House Chambers, Kensington, W.?

The advertisement which follows in the *Morning Leader* of August 4th upon the Honourable E. Pomeroy's advertisement begins: "DEAREST.—What must you think—not knowing circumstances?" And, indeed, it is wonderful to watch the workings of the layman's mind, when he is on the war-path against the medical profession.

CONTAGION FROM PUBLIC TELEPHONES.

To the Editors of THE LANCET.

SIRS,—May I ask that in the interests of the public you will publish my recent experience as to the growing danger arising from the use of the common mouthpiece by promiscuous callers at public telephones And perhaps you will invite correspondence from medical men and others with a view to obtaining suggestions as to minimising this menace to the public health During the last week three people used our public telephone who were in no way fit to do so, and yet under present conditions it is impossible to prevent the risk which they convey to other users of the telephone. In one case a man evidently advanced in consumption, having a violent cough with expectoration, used the instrument and afterwards I found the mouthpiece damp with, I presume, his congealed breath Later in the week a lady called up her medical attendant from his call office, and from the conversation which ensued I gathered that her children were suffering from measles. I also had a case in which from the conversation heard there is no doubt the user came from a house infected with chicken pox.

I personally use a pad saturated with a disinfectant, and perhaps if attendants were to frequently wipe the mouthpiece with such a pad risk would be obviated.

I inclose my card in confidence, but ask that I be allowed to sign myself,

CALL OFFICE ATTENDANT.

London, August, 1906.

"NOT VERY GAY."

IN reference to the article entitled "The Humours of Country Practice" which appeared in THE LANCET of July 28th, p. 275, a correspondent writes to us to say that the word "gay" in the expression of the patient concerning the state of his bowels, "Not very gay, sir," may be connected with the provincial English word "gain" meaning "tolerable" or "fairly." He is correct in his surmise but the word "gay" is not that which has the meaning of "merry" but the Scots word "gey" which is both an adjective and an adverb and in its adverbial sense bears the meaning of "tolerably," "fairly," or "pretty." For example, "gey bad" means "pretty bad"—i.e., rather worse than "rather bad" and not so bad as "very bad." The expression "not very gay" would therefore mean "not very regular," or "they do not act much," or "not notably." Jamieson in his Scottish Dictionary gives one meaning of "gey" as "worthy of notice" and Murray, Oxford English Dictionary, under the same word, says "Cf. gain"—i.e., "gain" in the sense spoken of above.

DISEASE IN THE BRIDE'S CAKE.

To the Editors of THE LANCET.

SIRS,—Now that the filthy practice of inflating the cellular tissue of the calf and other animals is being once more publicly condemned, mainly on the grounds of the dissemination of tuberculosis, I should like to draw attention to the equally disgusting and filthy practice of blowing icing and other sweetstuffs upon bride's cakes and other ornamental pastry by means of tubes applied to the lips of the pastrycook. I have quite recently come across a case where the man was suffering from well-marked syphilitic disease of the mouth and throat.

I am, Sirs, yours faithfully,

Putney, S.W., August 2nd, 1906. A. S. MORTON, M.D. Durh.

A LID FOR OPENED CONDENSED MILK CANS.

WE have had submitted to us by Nurse Bennett, of 48, Agnes-street, Waterloo Station, London, a lid made of tin for covering condensed milk tins when opened to prevent access therein of flies and dirt. The plan is to cut the top of the milk can right off and fit on the tin cap which consists of a narrow band or collar of metal surmounted by a flat hinged lid. The shape of this lid resembles the usual illustration of a segment of a circle, the segment being soldered down on to the edge of the collar, the hinge being in the centre of the chord, and the remainder of the circle forming the moveable lid, exposing underneath a semicircular flange at a distance of a quarter of an inch from the edge. The nurse says that she has found it useful in the sick room, particularly when on night duty, to cover a glass or jug of milk or beef-tea. We think it quite desirable that drinks that are left standing a long time should be covered up, and think that for condensed milk cans the idea is particularly good. If the top of the milk can is cut off neatly close to the edge we see no difficulty likely to be caused by the flange on the under side of the lid.

A CURE FOR INEBRIETY.

A CIRCULAR is issued by the Scottish Hagey Institute, whose offices are at 107, West Regent-street, Glasgow, which gives an assurance that the treatment adopted by the institute will not only enable inebriates to become total abstainers but will benefit them in a variety of other ways. Everyone knows that it is not extremely rare for an inebriate to become a total abstainer for a time, but we are not at present so much concerned with the efficacy or otherwise of this "cure for inebriety" as with the audacious offer of a commission of three guineas to medical men introducing patients. The institute might, if it chose, send circulars to medical men explaining its system of treatment, thereby leaving them to advise their patients as they think fit, but it is quite another thing to attempt to bribe the medical advisers of inebriate patients into recommending the "cure" advertised by the institute. We would advise our readers to beware of persons who seek to push their wares in this fashion.

INSURANCE APPOINTMENTS.

To the Editors of THE LANCET.

SIRS,—I have just received a call from an insurance agent who said that the chief medical officer of the company he represented had given him my name and that of one other practitioner in this locality for an appointment, the salary of which was to be £100 per annum in addition to fees. It soon appeared, however, as indeed I had half expected, that the "qualification" for this valuable appointment was 500 shares in the company, which, by the way, was only registered last week!

I frankly told the young gentleman that I was too old a bird to be caught with chaff of that nature, but he was confident that plenty of my brother practitioners would jump at the chance.

I am, Sirs, yours faithfully,

Woolwich Common, August 8th, 1906. THEODORE MAXWELL.

CUSTOMS OFFICERS AND THE PUBLIC HEALTH.

THE Commissioners of His Majesty's Customs, in their report for the year ending March 31st last, remark that the officers of Customs are employed in various ways for the security of the public health, a fact which has largely escaped the notice of the public Duties directly connected with the public health are performed not only under the Public Health Act, 1875, as amended by the Public Health Act, 1896, but also under Section 5 of the Revenue Act, 1883. Under this latter Act all ships on arrival at any port or place in the United Kingdom must bring to at the station appointed for the boarding of ships and it is at this time that the duties of the Customs department under the Acts mentioned are performed. The procedure is briefly as follows. The master or other responsible officer is questioned as to where the vessel comes from and as to whether there is, or has been, any sickness on the voyage These questions are answered either verbally or in writing, as circumstances require. If the replies are satisfactory the vessel is allowed to proceed. If, however, they show the vessel is infected she is required to moor at a specified place and cannot quit it nor can any person leave her until an examination is made by the port medical officer. A vessel is deemed "infected" when she has, or has had, on board any case of cholera, yellow fever, or plague. In cases where there has been on board during the voyage any other illness calling for the intervention of the port medical officer he is so informed before any person leaves the vessel. Persons making false answers to the oral or written questions or wilfully neglecting or refusing to obey or carry out, or obstructing the execution of, any regulations framed under the Public Health Act are liable to heavy penalties. In September last a vessel arrived at an east coast port with a suspected case of cholera on board. She was accordingly required to moor at the mooring station appointed for infected vessels. Upon examination by the medical officer it turned out that the patient was really suffering from the effects of excessive drinking and, upon the certificate of the medical officer that the vessel was free from infection, she was allowed to proceed.

HARVEST BUGS.

To the Editors of THE LANCET.

SIRS,—I should be glad if any of your readers could tell me of a reliable remedy for getting rid of the "harvest bug" I have tried sulphur ointment and corrosive sublimate lotion but without any relief. The irritation, more especially at night, is almost unbearable.

I am, Sirs, yours faithfully,

L.R.C.P.

August 7th, 1906.

COMMUNICATIONS not noticed in our present issue will receive attention our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 9th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Rainfall.	Solar Radia in Vacuo	Maximum Temp. Shade	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 3	29 77	W.	0·32	128	76	63	61	67	Cloudy
" 4	29 93	W.	...	122	73	58	60	66	Cloudy
" 5	30 19	W.	...	124	76	57	61	65	Cloudy
" 6	30 19	S.W.	...	111	78	66	61	66	Fine
" 7	30 10	S.W.	...	125	81	69	63	67	Cloudy
" 8	29 98	S.W.	...	127	85	63	62	71	Fine
" 9	29 85	W.	...	119	74	60	59	65	Cloudy

During the week marked copies of the following newspapers have been received: *Liverpool Courier, Clay Cross Chronicle, Birmingham Post, Bristol, Glasgow News, Manchester Guardian, Freeman's Journal, Mercury, Leeds and Yorkshire Mercury, Northampton Reporter, Dublin Devon Gazette, Darlington Echo, Northampton Reporter, Dublin Independent, Leeds Post, Times, Hull Mail, Belfast Whig, Dublin Independent, Leicester Post, Sheffield Tele-Sheffield Independent, Daily Mail, Leicester Post, Sheffield Telegraph, Westminster Gazette, Cardiff Mail, Globe, &c.*

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (15th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (16th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (18th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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MONDAY (13th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—12 noon: Lecture:—Dr. Low: Pathological Demonstration. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye.

TUESDAY (14th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin.

WEDNESDAY (15th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

THURSDAY (16th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye. 4 P.M.: Lecture:—Mr. Dunn: Demonstration on Selected Eye Cases.

FRIDAY (17th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Diseases of the Throat, Nose, and Ear. Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Dr. Ball: Some Points in Middle Ear Suppuration (with lantern slides).

SATURDAY (18th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: *Diseases of the Throat*, Nose and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

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THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1906, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

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A Lecture

ON

THE TREATMENT OF CANCER OF THE STOMACH.

Delivered at the Medical Graduates' College and Polyclinic on June 27th, 1906,

BY A. W. MAYO ROBSON, D.SC., F.R.C.S. ENG.,

HONORARY SURGEON TO THE DREADNOUGHT HOSPITAL.

GENTLEMEN,—When it is realised how frequent gastric cancer is and that the disease is at first local and curable in a considerable proportion of cases by early removal, it is curious that the surgical treatment of this disease has not yet received more attention. The explanation of this anomaly can only be ignorance or prejudice, for clinical experts, both medical and surgical, in various parts of the world, have for some years not only been writing on the subject and trying to convince the profession and the public of the needs and the possibility of an early diagnosis with a view to successful radical treatment, but they have also clearly demonstrated the possibility of successfully practising what they have preached both with regard to diagnosis and treatment.

As regards the frequency of carcinoma of the stomach, Dr. O. N. Dowd[1] called attention to the fact that according to the census reports, there were no less than 9000 deaths from cancer of the stomach in the United States in 1900 and of these very few had been submitted to surgical treatment. I find on referring to the Registrar-General's report for England and Wales that during the years 1901–04 no less than 19,607 deaths from cancer of the stomach were registered, equal to 4901 per annum.

Our ignorance with regard to the possibility of an early diagnosis is partly true, for in 5 per cent. of cases the disease runs its course without any local signs, but if it were fully recognised that we have in exploratory incision the one diagnostic resource which is reliable in a considerable proportion of cases of incipient cancer this reproach might be put away. On this matter prejudice stands in the way, for although there may not be a difficulty in convincing a patient of the desirability of operation when a disease is positively diagnosed, for instance, when a tumour has made the diagnosis almost certain, yet when an operation is suggested as a means of diagnosis the patient is by no means so easily convinced of the desirability of accepting even a slight risk, especially if the medical attendant does not himself feel the absolute necessity of pressing the importance of the procedure. In blaming the public for the delay I think we are often unjust to their intelligence, for persons of ordinary intelligence can, as a rule, easily be made to understand that the waiting for a positive diagnosis means standing idly by until progressive involvement means hopeless extension of the disease.

Whenever a patient near or over 40 years of age complains of loss of appetite and other gastric symptoms, particularly pain and vomiting, followed by loss of flesh and strength, especially if associated with anæmia, and if the symptoms fail to yield in a short time to proper treatment, cancer of the stomach should be suspected, and if repeated examinations of the stomach contents after test meals show diminished digestive power and impaired motor function with possibly a diminution of free hydrochloric acid and the presence of lactic acid, an exploratory operation ought to be urged without delay in order to complete the diagnosis and if necessary to carry out curative treatment.

Laboratory methods.—The chemistry of the gastric secretion, the microscopic findings in the stomach contents, and the examination of the urine, fæces, and blood, all of which are of value in the later stages of the disease, must not have too great a weight attached to them in the earlier stages, nor must the clinician wait for the development of tumour or glandular enlargement before recommending exploratory incision.

Since cancer *per se* has no symptoms, it not infrequently happens that if the growth involves the body of the stomach and not the orifices, it may pursue its complete course without giving rise to any definite local symptoms and it has not infrequently happened that the cause has only been discovered at the necropsy. This form of latent cancer constitutes 5 per cent. of all cases according to Professor W. Osler, who also gives it as his opinion that 10 per cent. of all cases of cancer of the stomach run an extremely rapid course, terminating in death within three months.

In no less than 59·3 per cent. of cases of cancer of the stomach on which I have performed gastro-enterostomy for the relief of symptoms, the disease having advanced too far for gastrectomy, the long history of painful dyspepsia suggested the possibility of ulcer preceding the onset of malignant disease. W. J. Mayo, in 157 cases of cancer of the stomach, found a previous history of ulcer in 60 per cent. Cruveilhier discussed the cancerous transformation of ulcer of the stomach in 1839, but to Dittrich, writing in 1848, belongs the chief credit for drawing attention to the subject. He described in 160 cases of new growth six cases of cancer developing in the immediate vicinity of active or healed ulcers, two cases of the association of cancer and ulcer, and two cases in which the cancer was limited to a certain part of the margin of the ulcer, the rest remaining sound. Brinton in 1856 recognised the possibility of the grafting of cancer upon long-standing ulcer. Lebert in 1878 considered that the cancerous transformation occurred in 9 per cent. of ulcers but Zenker in 1882 expressed a strong opinion that all cases of cancer of the stomach were secondary to ulceration.

If these conclusions that ulcer is a predisposing cause of cancer are correct, and my experience tells me they are, then it is quite clear that we must in all cases in which an ulcer of the stomach resists treatment or its scar narrows the pylorus recommend an early gastro-enterostomy or excision of the ulcer in order to prevent the development of carcinoma. If a gastro enterostomy has been performed then the mechanical irritation by food of the ulcer in the pyloric region is reduced and the friction necessary to produce a carcinoma will probably not occur.

The origin of carcinoma in an ulcer of the stomach is only another instance added to many of which we have knowledge of the effect of persisting irritation in establishing malignant changes. Carcinoma occurs most frequently in those areas in which the ulcers chiefly lie. Whatever the frequency of the malignant change in chronic ulcer may prove to be the fact of its occurrence should be an additional incentive to the earlier surgical treatment of ulcers which prove rebellious.

Medical treatment may be considered in a few words; it cannot cure and can do very little even to prolong life; it therefore applies only to cases too advanced for surgical treatment or where operation is declined. It aims at nourishing the patient as much as possible and at relieving pain or other symptoms as they arise.

Surgical treatment offers the only chance of relief and the only possible chance of cure and in order that the best results may be attained the physician and surgeon must act in concert, so that by a timely diagnosis an operation may be undertaken at the earliest possible date. There is ample evidence to show that for some length of time cancer is a purely local disease; and, just as in the breast, the tongue, and the uterus we can point to patients living comfortably years after the removal of the disease, so in gastric cancer it is reasonable to assume, and in fact can now be proved by positive evidence, that a like result may be brought about. Here, however, we are faced with the difficulty of a sufficiently early diagnosis being made, and it is not only necessary for us to appeal for an early, exhaustive, and persistent investigation into suspicious stomach cases, but that when suspicion arises an early surgical consultation may be held, and, if needful, an exploratory operation carried out to complete the diagnosis. Let us remember, also, that to prolong the investigation uselessly and to wait until a tumour develops into a recognisable quantity, is to lose the favourable time for a radical operation; for although a clinical examination of the patient may give us strong grounds for suspicion, our diagnosis can only be rendered certain by a digital examination, which may be effected through a small incision that can, if needful, be made under cocaine anæsthesia with little, if any, risk. At the time of the exploratory procedure it will be generally advisable to have everything ready to follow it up by whatever further operation may be called for. It may be discovered that the disease is manifestly not malignant and that no further operation is necessary, in which case the patient and his friends will be relieved of their anxieties. Or it may be found that some curative operation can be done, for instance, the removal of adhesions or the relief of obstruction. Or it may be discovered that the disease resembles malignancy both in its history and physical signs and in the form of the tumour, which on account of extent and adhesions and from the presence of enlarged glands it seems impracticable to remove with any hope of permanent success. The results of drainage by gastro-enterostomy in some of these cases, which at the time appeared beyond cure, are remarkable. The following is an example, one of many such cases on which I have operated and in which the patients were at the time of operation extremely ill and supposed to be suffering from cancer of the stomach but who, as the result of surgical treatment, are in good health years later.

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[1] Medical Record, 1905.

The patient, a medical man, aged 31 years, had had dyspepsia for 17 years; this had been more severe during the last 20 months. 16 months previously vomiting began and from the outset large amounts were vomited but never contained blood. In December, 1897, the stomach reached to the pubes and visible peristalsis was present. Relief followed dieting and lavage until March, 1898, since which time the pain had been almost constant. A loss of weight had occurred from 10 stones to 8 stones 6½ pounds and the patient was extremely feeble. Operation was performed on May 6th, 1898, when a large irregular tumour was found at the pylorus and along the lesser curvature with extensive adhesions, but the glands, though large, were discrete. *Gastro-jejunostomy was followed by relief of all symptoms.* When the patient left the nursing home on June 7th his weight was 8 stones; on August 17th, 1898, it was 9 stones 3 pounds. The following is an extract from a letter from the patient, dated Feb. 12th, 1900: "My health continues perfect. I have not lost a day's work through illness since I recovered." He is in good health in 1906, eight years after operation.

I would lay particular stress on this class of cases, for I think it serves to explain some misconception about cancer generally. It would be easy for anyone to raise a claim to having cured a number of cases of cancer of the stomach by gastro-enterostomy, but I do not for a moment believe that any of these cases were more than inflammatory tumours formed around chronic gastric ulcers; nevertheless, I have no doubt that they would have proved fatal just as certainly as if they had been cancer had no operation been done. I feel sure that many such would have been certified as deaths from cancer of the stomach had no exploration been done or no necropsy and microscopic investigation made.

The cases also illustrate another point. Even though a tumour be present, and even though it be probably too large for removal, it may be quite worth while advocating an exploration, to be followed up by gastro-enterostomy if that be practicable, in the hope that the disease may prove to be wholly or partially inflammatory, which the physiological rest assured by gastro-enterostomy will either cure or materially relieve.

To pass to the genuine cancer cases, What can we do for them? This will depend (1) on the position of the growth; (2) on its extent; (3) on the presence of adhesions; and (4) on glandular invasion or secondary growths.

First as to position. In irremoveable growth at the cardiac end, if it involves the cardiac orifice and adjacent portion of the stomach, gastrostomy or jejunostomy should be performed in order that starvation may be staved off The view that gastrostomy is both a dangerous and useless operation is, I know, held by some, but I feel convinced that such views are mistaken ones. When these cases, either of cancer of the cardiac end of the stomach or of the œsophagus, were handed over to the surgeon in a moribund condition the mortality of gastrostomy was, of course, terrible, and the short survival, even if successful from an operative point of view, made the procedure almost useless; but when one can point to a series of nearly 30 gastrostomies performed since 1897 with only a 5 per cent. mortality and great prolongation of life to many, there are good grounds for saying that the operation is well worth doing. The operation is quite a simple one and, if necessary, can be performed under cocaine anæsthesia in a very short time In several cases the patients have lived a year or more and have gained considerably in weight, even up to 1½ stones and have lost their pain and the distressing sense of starvation.

The second class of cases to be considered is where the disease involves the pylorus and is producing obstruction to the passage onwards of the gastric contents, but where on account of extensive adhesions, secondary growths, or involvement of glands, it is considered unwise to attempt pylorectomy or partial gastrectomy, though there is sufficient free stomach wall left to enable a gastro-enterostomy to be performed. In such cases a gastro-enterostomy, if performed with proper expedition and adequate precautions, affords the greatest relief to the sufferer who not only loses the distress due to painful peristalsis and to the irritation of retained secretion but also becomes freed from the toxæmia due to absorption of the poisonous fermenting stomach contents which are drained away into the intestine and there disposed of. Thus life is prolonged and made more comfortable, flesh and colour are regained, and even in cases of cancer the patient may have a new lease of life.

The following cases are examples:—

CASE 1.—The patient, a man, aged 36 years, was seen on Oct. 26th, 1901. He suffered from manifest tumour of the stomach and had a history of stomach trouble extending over several years, with vomiting of blood and passage of melæna on two occasions within the preceding four months. At the operation a large tumour involving the duodenum and pyloric end of the stomach, too adherent for removal, was found and gastro-enterostomy was performed. After the operation he went abroad and for six months he rapidly gained weight and felt very well. He then began to get thinner and lose strength and without any pain he gradually became weaker and succumbed in September, 1902, 11 months after operation.

CASE 2.—The patient, a man, aged 63 years, had had symptoms for five years; at first those of chronic ulcer, later those of malignant ulcer with tumour associated with hæmatemesis. Gastro-enterostomy was performed on March 22nd, 1901. He made a good recovery and returned home at the end of the month, having gained about 4 pounds in weight during the fourth week. He ultimately gained about 2 stones and lived for a time in great comfort, but the growth progressed and he succumbed to exhaustion about a year later, having been able to enjoy life for some months.

CASE 3.—The patient, a man, aged 68 years, was operated upon on July 18th, 1902, for pyloric tumour with dilatation of the stomach. He was extremely feeble and suffering great pain. The disease appeared to be cancer and the glands were extensively involved, so that gastro-enterostomy only could be performed. A letter from Dr. S—— says that the patient gained 10 pounds up to November and is now 14 pounds heavier than before he fell ill. He is able to take regular exercise and has never felt any pain after taking any meal whatever since the operation. He was well over three years later.

In some cases where the condition of the patient and not simply the extent of the growth has prevented a radical operation, the speedy restoration to health enables a radical operation to be subsequently undertaken. The following case, out of others that could be cited, serves to illustrate what I mean. The patient, a man, aged 62 years, had had symptoms for a year. An epigastric tumour had been noticed for a month. There was no free hydrochloric acid in the vomit. An exploratory operation was performed on Nov. 15th, 1900. A ring of cancer was found forming an hour-glass-shaped stomach. The patient was too ill for gastrectomy. Posterior gastro-enterostomy was performed. A good recovery followed. On Dec. 20th, a month later, partial gastrectomy was performed, the ring of growth being removed and the cardiac and pyloric remnants of the stomach being fixed together over a large bone bobbin. A good recovery again resulted and the patient returned home within the month. He was quite well a year later. A letter was received from Dr G—— in November, 1902, in which it was stated that the patient had put on flesh, had gained colour, and had been able to take food well for over a year, but had succumbed to exhaustion from secondary growths in the omentum on March 30th, 1902 about 18 months after operation.

These examples will suffice to show the beneficial effects of gastro-enterostomy even in advanced cases of cancer of the stomach, for, as will be seen immediately, it is only in the cases too advanced for removal that the short-circuiting operation should be performed.

With regard to these patients the question may be asked, Is a palliative operation worth while? I have no hesitation in answering this decidedly in the affirmative, for in cases where cancer of the pylorus is obstructing the outlet of the stomach, the painful peristalsis, frequent vomiting, and inability to take food can all be relieved, and the remainder of life, months or years as the case may be, can be rendered not only tolerable but comfortable, for food can be taken in safety and enjoyed, the pain due to peristalsis disappears, the vomiting ceases, and the patient frequently puts on flesh considerably and is enabled to resume his duties, death ultimately occurring from exhaustion. The operation can be done with little risk, as including all my cases of posterior gastro-enterostomy performed during the past ten years the mortality is only 3·3 per cent., a great contrast to the death-rate of these cases a few years ago.

The third class of cases is of great interest and includes those where the disease is limited to the stomach and where the lymphatic glands and adjoining organs have not been seriously invaded, the patient being in a sufficiently good condition to permit of the radical operation being done. The following are examples.

CASE 1.—The patient, a woman, aged 50 years, had had symptoms for five months and a tumour had been noticed for three weeks. An operation was performed on Jan. 31st, 1901. The tumour was found to be involving the whole circumference of the pyloric end of the stomach, a short distance from the pylorus. After the growth had been widely excised the distal and proximal ends of the stomach were brought together over a large bone bobbin. The glands were excised from the lesser and also from the greater omentum. A smooth recovery followed. On Jan. 4th, 1903, two years later, her medical attendant wrote to tell me that the patient was remarkably well and that there was no sign of recurrence. She remained well until 1905, over four years, when there was recurrence of the disease.

CASE 2.—In the case of this patient, a woman, aged 54 years, there had been loss of flesh, and pain, with failing health for eight months, and slight jaundice and a tumour in the epigastrium and right hypochondrium for a shorter period. An operation was performed on August 9th, 1900. The gall-bladder, containing gall-stones and the site of a tumour, was removed. As the adjoining portion of the liver was involved a wedge-shaped partial hepatectomy was performed and as the pylorus was also the site of growth a partial gastrectomy including the pylorus was done, the cut section of the stomach being united to the duodenum by two continuous sutures over a bone bobbin. The removed tumour, examined microscopically after operation, proved to be cancer. That part of the abdominal wall to which the tumour had been adherent was also excised. The patient was reported to be well in 1905.

CASE 3.—The patient, a middle-aged man, who had been ailing for a year and had had stomach symptoms for three months and a noticeable tumour for six weeks, was supposed to be too ill and anæmic for operation, but as the tumour, which was situated in the left hypochondrium and epigastrium was freely moveable, I decided to operate. On May 23rd, 1902, I found a mass of cancer involving the centre of the stomach, which I removed along with some glands adjoining it. Recovery was uninterrupted. A letter dated Jan. 22nd, 1903, from his medical attendant contained the following statements: "Patient very well, has gained 14 pounds in weight. No evidence of return of growth. Able to transact his business." The patient lived until June, 1906, over four years after operation.

CASE 4.—In 1902[2] I reported a case *in extenso* where I had removed the whole of the stomach, except a small portion of the dome adjoining the œsophagus, for malignant disease, on March 18th, 1901. I am glad to say that this patient, over five years later, remains in absolutely good health; he has a good appetite, enjoys his food, and is able to attend to his business as usual.

These cases will be sufficient to show that removal of even a considerable portion of the stomach may be something more than a palliative operation; and I think it justifies me in saying that although it is better to have cases of cancer diagnosed and operated on early, yet we need not take the pessimistic view that if a tumour be manifest it is too late to perform a radical operation.

The fourth class of cases is that in which the disease involves a great part or the whole of the stomach, the disease being irremoveable and gastro-enterostomy impracticable, and in which any attempt at taking food brings on pain and vomiting, so that the patient unless relieved must rapidly die in great distress; here a jejunostomy can be performed by a very simple and similar procedure to that of gastrostomy and through a Jaques catheter sufficient food can be given to ward off starvation and relieve the pain caused by attempts at taking food by the mouth. This operation can be done through the small exploratory incision and need involve very little longer time. It may prolong life for months or even for a year and make the end much easier and certainly less painful. I reported a case of jejunostomy in 1891 in which the patient lived three months, and in 1904 one by a new method that had lived for 12 months after jejunostomy, and the fact of my case of almost complete gastrectomy being well five years after operation shows that the passage of food directly into the small intestine may be compatible with a comfortable life. Although the operation is rarely called for it is one nevertheless which should be borne in mind, as in an appropriate case it may confer a great boon upon the patient and render tolerable an otherwise comfortless existence.

No useful purpose can be served by comparing the results of gastrectomy with those of gastro-enterostomy for cancer, since the latter operation in malignant disease is reserved for late cases that have passed the stage when gastrectomy would have been a justifiable operation; nor do I consider that an estimate of the true value of gastrectomy can be attained by a consideration of the earlier cases operated on before the technique had been perfected. Up to the end of 1905 Kocher had performed 110 partial resections of the stomach, with a mortality of 24 per cent., but of the cases, 58 in number, operated on since 1898 the mortality was only 15 per cent., a percentage closely corresponding to that of the brothers Mayo, who up to the end of last year had performed 100 gastrectomies with a mortality of 14 per cent. In my own practice since 1896 the mortality for partial gastrectomy has been 16 per cent., and Maydl's statistics give also a 16 per cent. mortality. We may thus conclude that the immediate risks of partial gastrectomy as calculated from a considerable series of cases are between 14 and 16 per cent. Of the 27 cases of total gastrectomy collected from all sources by Mr. H. J. Paterson[3] ten patients died, a mortality of 36 per cent. Of the 20 cases of sub-total gastrectomy six patients died, a mortality of 30 per cent.

The remote results are equally interesting and not less important, not only from the point of freedom from recurrence but also as to the effect on the general health and comfort of the patient after the removal of the whole or part of the stomach. I have had under my notice for over five years a case of sub-total gastrectomy and from observations on this case it would seem as if the whole of the functions of the stomach could be replaced.

It would at first sight appear that as a reservoir the stomach could not be replaced, but the fact that a meal of moderate size can be taken shows that the upper end of the duodenum or the lower end of the œsophagus or both become dilated and serve that purpose, though perhaps to a limited extent. The mechanical functions of the stomach can be vicariously performed by the mouth aided by a careful selection of diet. The digestive functions of the stomach can be taken up by the pancreatic and the intestinal secretions and the absorption which normally occurs in the stomach can as easily take place in the small intestine. Pachon and Carvalho[4] have shown that dogs may gain in weight and remain in perfect health after removal of the entire stomach, and further observations on patients after complete gastrectomy, as in Schlatter's case, show that perfect health is compatible with an absence of the stomach.

Of the 27 total gastrectomies it is interesting to note that ten patients are living and well 8, 7, 5, 4½, 4, 3½, 2, and 1¼ years, and two others at less periods, after operation, while others survived 3¼ years, 1¼ years, 13 months, 9 months, and 7 months respectively. With regard to sub-total gastrectomies, of the 14 patients who recovered from operation one was well 7½ years, one 6¼ years, and one 5¼ years after operation; while of the others one survived operation for 11 years and died from heart trouble without recurrence, one

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it. Med. Jour., Nov. 8th, 1902.

[3] THE LANCET, March 3rd, 1906, p. 574.

[4] Comptes Rendus de la Société de Biologie, 1905, p. 794.

5 years, two 2¾ years, two 1¾ years, and one 1½ years respectively.

The immediate results of partial gastrectomy have been mentioned above and the final history has been obtained by Mr. Paterson in 55 of those that recovered. Of the 55 patients 35 have died since the operation; one died from recurrence seven years, and two five years later, but it is interesting to note that all the other patients in whom recurrence ensued died within 3½ years, so that if a patient remains free from recurrence for four or more years there would seem to be a strong probability of cure. Eight of the patients who died, lived over 3 years after operation and the average duration of life in cases where recurrence took place was just over 2 years. Of the patients who are apparently cured, one is alive and well 14 years, one 7½ years, two 6 years, one 5½ years, two 5 years, five over 3 years, and three over 2 years subsequent to operation, and one was living 4½ years after operation, but recurrence was feared. Thus nearly 14 per cent. of the patients who recovered from operation would seem to be cured or to have a reasonable prospect of remaining free from recurrence.

In conclusion, I hope I have advanced sufficient evidence to prove the following:—1. How desirable it is to make an early diagnosis of cancer of the stomach in order that a radical operation may be performed at the earliest possible moment 2. That it may be needful to perform an exploratory operation in order to complete or confirm the diagnosis. 3. That such an exploration may be done with little or no risk in the early stages of the disease. 4. That even where the disease is more advanced and a tumour perceptible, an exploratory operation is, as a rule, still advisable in order to carry out radical or palliative treatment. 5. That where the disease is too extensive for any radical operation to be done, the palliative operation of gastro-enterostomy, which can be done with very small risk, may considerably prolong life and make the remainder of it much more comfortable and happy. 6. That some cases, thought at the time to be cancer, too extensive for removal, may after gastro-enterostomy clear up completely and get quite well. 7. That in cases of disease of the cardiac end of the stomach too extensive for removal, the operation of gastrostomy may considerably prolong life and prove of great comfort to the patient by preventing death from starvation. 8 That even where the disease is too extensive either for removal or for a gastro-enterostomy being performed with a fair chance of success, the operation of jejunostomy may prove of service to the patient. 9 That where a radical operation can be performed the thorough removal of the disease may bring about as much relief to the patient as does the operation for the removal of cancer in the breast, uterus, and other organs of the body, and that in some cases a complete cure may follow.

THE PUBLIC SUPPLY OF PURE OR SPECIALLY PREPARED MILK FOR THE FEEDING OF INFANTS.[1]

BY G. F. McCLEARY, M.D. CANTAB., D.P.H.,

MEDICAL OFFICER OF HEALTH OF HAMPSTEAD.

AMONG the newer measures for the prevention of infantile mortality which have been increasingly adopted by sanitary authorities during the last few years the public supply of specially prepared infants' milk takes a prominent place. Since the first British Infants' Milk Depôt was established by the St. Helens corporation in 1899 the number of these institutions has steadily increased, and we are now in possession of a fund of information relating to their work which was not at the disposal of the earlier workers in this movement. My own experience of the practical working of a milk depôt during a period of nearly four years has led me to think that the methods upon which the British milk depôts are generally conducted might with advantage be modified and extended, and that the time has now arrived when the whole question of the public supply of infants' milk should be thoroughly reconsidered so that the infants' milk depôt might be allotted its proper place in our collective organisation for the protection of the public health.

The infants' milk depôt is a feature of the new preventive medicine, which is concerned not only with the hygiene of the environment but also with the hygiene of the person, and its object is to prevent the heavy infantile mortality due to defective infant feeding. Defective feeding is, of course, not the only cause of infantile mortality; there are many other conditions which have not yet received the attention their importance demands—such, for instance, as the conditions affecting the unborn child during the period of gestation. Still, we may regard defective feeding as the chief cause of infantile mortality and it is certainly the cause which has of late years received the most attention from sanitary authorities. In most towns a municipal leaflet on infant feeding forms part of the circulating literature of the district, and usually the directions in such advisory leaflets are supplemented by the oral instruction of health visitors. The infants' milk depôt should not, then, be regarded as marking a new departure in our methods of public hygiene. It is rather an extension of the system of municipal direction of infant feeding which was at work years before the first milk depôt opened its doors in the last year but one of the nineteenth century. Nor should the work of a milk depôt be looked upon as limited to the handing of bottled, modified, and more or less sterilised milk over a municipal counter. The main function of the infants' milk depôt is to serve as the nucleus of an organisation for the feeding of infants under municipal direction and supervision. This is the point I wish to emphasise in the following remarks.

The infantile mortality dependent upon defective infant feeding is, broadly speaking, a mortality of hand-fed infants.—If all babies could be secured an adequate supply of mothers' milk during the first 12 months or the first nine months, or even the first six months, of life our mortality tables would present a very different appearance. Fortunately there is reason to think that in most towns at all events breast-fed babies are still in a majority. Hand-fed infants form, as Dr. J. F. J Sykes has pointed out, a residuum; but the important point to remember is that it is this residuum that afflicts us with the enormous mortality from diarrhœa and malnutrition against which our preventive methods are chiefly directed. There are two ways of dealing with this residuum of hand-fed infants. One is to promote breast-feeding, so as to reduce the residuum to the smallest possible dimensions; the other is to improve the artificial food supplied to the hand-fed infants, so that their hand-feeding may do them as little harm as possible. Broadly speaking, it may be said that while the encouragement of breast-feeding is the chief feature of the French methods of preventing infantile mortality, we in this country have devoted ourselves mainly to the improvement of artificial feeding. The infants' milk depôt may be made a means to promote both these objects if it be conducted somewhat on the following lines.

In the first place, it is important that the milk should never be supplied in such a way as to run the risk of discouraging breast-feeding. Care should be taken to admit to the depôt only those infants for whom satisfactory breast-feeding is impossible to secure During the last year I was connected with the Battersea depôt the milk was not supplied for an infant under nine months unless the mother could satisfy me, by the production of a written recommendation from a medical man or otherwise, that she was unable to suckle her child. In this way I was able to persuade a number of mothers, who would otherwise have prematurely weaned their babies, to continue to suckle. In some cases, where it was impossible for the child to be wholly breast-fed, partial breast-feeding was secured, the mother's milk being supplemented by a supply of cows' milk from the depôt. In all cases, however, the applicants were repeatedly assured that the depôt milk, like all artificial foods, was but a poor substitute for mother's milk. I would urge the importance of taking precautions of this kind. If the milk is supplied to all applicants without discrimination we lay ourselves open to the charge that we discourage breast-feeding and are therefore guilty of *lèse maternité.*

Secondly, the infants should be under periodical medical supervision. In the French institution, the goutte de lait, from which our milk depôts are derived, the chief feature of the work is not by any means the distribution of the milk but the systematic weighing and medical supervision of the infants. Every week the baby is brought to the depôt, where it is weighed and examined by the medical director of the institution. Most of the British milk depô direct medical supervision, but a certain amount supervision is secured by the domiciliary visitation by lady inspectors and health visitors, acting under the instructions of the medical officer of health. This domiciliary visitation is very valuable work. The mother can be influenced and instructed with more effect in her own home than anywhere else. In the work of the Glasgow depôt, however, the advantages of both methods are combined. Within the last few months the corporation of Glasgow has appointed a lady doctor to visit the homes of the infants fed from the municipal milk depôt and to weigh the babies and to supervise their progress generally. This appointment is a valuable and significant development of the work of the infants' milk depôt. It marks a new departure in preventive medicine by bringing medical women into the practical work of public health administration. Public health work is work for which women doctors are especially well fitted, and it is to be hoped that the number of medical women employed in such work will be much increased in the future. I should say, however, that Glasgow is not the first town to enlist the services of medical women in the prevention of infantile mortality; that honour belongs, I believe, to Huddersfield. There is no reason, however, why the advantages of this systematic medical supervision (including weighing) need be restricted to the babies fed on the depôt milk. Nursing mothers should also be encouraged to bring their babies to the depôt to be weighed and supervised. In this way it would be possible to secure a continuance of breast-feeding for many infants who are now prematurely weaned. Many women give up suckling, and deliver up their babies to the bottle on the advice of ignorant friends or relatives because their milk appears to disagree with the baby. In such cases what is wanted is not the premature weaning which now too often occurs, but a skilled regulation of the mother's diet and mode of life so as to make the milk more suited to the baby's needs. This could be insured by a system of municipal supervision of sucklings. I see many possibilities in the system of municipal supervision of infant-feeding which has been developed by the milk depôts. We have heard a good deal lately about the medical inspection of school children but the medical inspection of infants is equally important and necessary. At the present time many mothers do not seek medical advice on child-rearing until the child is already ill, often so ill as to be beyond the hope of recovery. It would be far better that such advice should be given to her while the child is still healthy. I have no doubt that the medical supervision of infant-feeding by municipal medical men for the purpose not of curing but of preventing disease, will become an important feature in our system of State medicine. We are awaking to the realisation that every baby born to us is a national asset, and sound national policy no less than humanitarian feeling dictates that no effort should be spared to secure the physical efficiency of those to whom will be committed the future of our country.

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[1] A paper read before the National Conference on Infantile Mortality.

There is another way in which the practice of the British milk depôts might be improved. In all our depôts, so far as I am aware, the milk is either sterilised or pasteurised; and without entering upon a discussion as to disadvantages of sterilised milk, which I think have been greatly exaggerated, we must all admit that it would be better to supply the milk pure and uncooked if it could be done. All methods of milk purification having for their object the neutralisation of existing pollution, such methods as sterilisation, pasteurisation, centrifugalisation, or filtration, we must regard as makeshifts, to be abandoned when better methods of milk production become practicable. Is it possible by strict veterinary supervision, combined with aseptic methods of milk production, the employment of bottles, and the free use of cold storage, to supply raw cows' milk to infants with impunity? The experience of the Municipal Infants Milk Depôt at Rochester, U.S.A., where such methods have been in operation for the past seven years, shows that it is quite possible to do this provided that the complete control of the processes of production, from the care of the cows onwards, is in the hands of the responsible officers of the municipality. The municipal cow is a necessary complement of the municipal milk depôt. If the methods of clean milk production which have been employed with such success at Rochester were adopted in the British depôts not only would the quality of the milk supplied be greatly improved but an object-lesson of great value could be given to the dairy farmer. An ounce of example is worth a ton of precept. One model municipal dairy farm managed on scientific methods would do more to promote the production of pure milk than any number of reports and papers on the question of the milk-supply.

In conclusion, I would again urge that the infants' milk depôt is very much more than a municipal milk-shop—a place where municipal milk is handed out to anyone who chooses to ask for it. It is, or at all events it should be, (1) an important educational influence, a school of infant feeding, the centre of a system of municipal supervision of infant feeding; (2) the source of a pure milk-supply; and (3) an object-lesson in the production of pure milk. It is by the attainment of these objects that the infants' milk depôt will achieve its justification, its permanent place in our system of preventive medicine, and its ultimate success.

Hampstead.

INFANTILE MORTALITY AND THE EMPLOYMENT OF MARRIED WOMEN IN FACTORY LABOUR BEFORE AND AFTER CONFINEMENT.[1]

BY GEORGE REID, M.D. ABERD., D.P.H.,
MEDICAL OFFICER OF HEALTH OF STAFFORDSHIRE.

THERE is no need to emphasise the importance of that phase of the infantile mortality question the discussion on which I have the honour to introduce; neither, before an audience such as this, is it necessary to occupy much time in proving what must be patent to all who have studied the question. Endless proof is available of the injury to infant life arising from the unrestricted practice of mothers engaging in factory labour, but, as it happens that I have had somewhat exceptional opportunities of gauging the effect of this practice in a large manufacturing county, a short account of certain special inquiries I have made regarding the question may be of some interest.

The artisan population of Staffordshire is grouped together in two large centres in the extreme north and south of the county, the intervening area being rural in character. From the point of view of health conditions the two grouped populations, north and south, may be said to be identical and in both cases the general influences which operate in causing a high infantile mortality prevail largely and to an equal extent. In one respect, however, there is a marked difference in the two populations arising from the special industries carried on in the two centres, the workers in the north being mostly potters while those in the south are miners and iron workers; therefore in the north a very large number of women, both married and single, are engaged in factory labour, whereas in the south the trades carried on afford practically no employment for women.

Some 16 years ago, when my public health work in Staffordshire began, I was very much struck with the great excess in the infantile mortality-rates of the northern artisan towns compared with those of the southern towns, high though the latter were; and this led me to make special inquiry into the question, with the result that the dissimilarity could not be accounted for by any apparent difference in the general sanitary surroundings of the two populations. The conclusion then presented itself that in the married woman labour question the key to the situation might be found. With the view of more stringently testing the accuracy of this hypothesis the towns, irrespective of geographical position in the county, were as far as possible specially classified into three groups according to the proportion of married women workers in each, with the result that the infant mortality-rates were found to vary in direct proportion to the number of such workers. From year to year since then these figures have similarly been classified, and the results have unfailingly, and in a very marked manner, supported the conclusion originally arrived at. Whether, from the operation of other causes, the general infantile mortality happened to be high or low from year to year, practically the same proportionate increase or decrease, as the case may be, in the three groups of towns was maintained.

In classifying the towns into groups in the first instance I obtained the necessary information as to the relative number of married women workers from district medical officers of health and manufacturers, but, while all care was taken to insure accuracy, in the absence of any available figures the classification was merely approximately correct. In 1902, however, the Registrar-General was good enough to supply me with certain figures, specially extracted from the 1901 census returns, showing the number of married and widowed females engaged in specified occupations in each of the towns in question, together with the number of females living at various ages. From these figures I estimated, in the case of each artisan town, the percentage of married and widowed females engaged in work involving absence from home during the day per total females between the ages of 18 to 50 years, but I had no data to allow of the number of married as distinct from widowed females being arrived at. Also, in order to make use of the Staffordshire infantile mortality returns which were available for 24 years I was obliged to assume that the number of married and widowed out-workers to the female population within the specified age limit was the same throughout the whole period as in the last census year, an assumption which, I think, is justified by the fact that no change has taken place in the special trades carried on in the various towns during that period.

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[1] A paper read before the National Conference on Infantile Mortality.

On the new basis I have reclassified the towns (artisan only) into three groups, placing in the first group those in which the proportion of married and widowed females engaged in work away from home to total females between 18 and 50 reached, and exceeded, 12 per cent., in the second group those towns in which the proportion was under 12 per cent. and over 6 per cent., and in the third group those in which the proportion was under 6 per cent.

In the following table the rates in the different groups of towns are given.

Class according to percentage of married and widowed workers to female population between the ages of 18 and 50 years.	Number of towns.	Total population, 1901 census.	Deaths of infants under one year per 1000 registered births.		
			1881 to 1890.	1891 to 1900.	1901 to 1904.
I.—12 per cent. and over	5	132,299	195	212	193
II.—Under 12 per cent. and over 6 per cent.	13	263,868	165	175	156
III.—Under 6 per cent.	8	131,508	156	168	149

As a matter of fact, the more accurate method of classifying the towns as compared with the classification previously adopted has not caused any appreciable alteration in the relative mortality in the three groups, and I submit that the figures bear out my contention that, in the absence of any other apparent reason, the excessive mortality in the first group compared with the second and third, and in the second compared with the third is attributable to the nature of the trades carried on as affecting the facilities for the employment of women away from home, and as a consequence the proportion of wholly artificially fed to entirely or partially breast-fed infants.

There is another aspect of the question, however, apart from that which more directly results from mothers neglecting their home duties after their children are born, and that is the effect, as regards the viability of the unborn, of mothers engaging in other than domestic work up to the time of their confinements. While all must realise how undesirable this practice is, the extent of the injury directly attributable to it cannot very readily be demonstrated by figures. In time, however, I think we shall have data available in connexion with the administration of the Midwives Act which may throw some light on the question. This Act has only been in practical operation for a little over 12 months and it has taken some time to get the machinery into efficient working order; nevertheless, through the energy of two inspectors working under the Act in Staffordshire I am able, even at this early date, to submit certain figures which, having regard to the difference between the north and the south, in the matter of women employment, are very significant. Under the rules of the Central Midwives' Board certificated midwives attending abnormal cases have to call in medical assistance and notify the fact to the local supervising authority and they have also to notify all stillbirths occurring in their practice. This being the case, allowing that working in a factory up to the date of her confinement is detrimental to the mother, one would expect, other things being equal, that the abnormalities and the stillbirths in the pottery towns would exceed those in other artisan towns where the nature of the work does not afford employment for women. For the purpose of inspection under the Act the county is divided into northern and southern areas, the former comprising the populous pottery towns and the latter the equally populous towns inhabited by miners and iron workers. Up to the present time the following are the relative figures for the two areas as regards notifications received of (*a*) abnormalities and (*b*) stillbirths in the practice of registered midwives per 1000 births registered:—

	Abnormalities.	Stillbirths.
North	15·0	9·4
South	6·0	3·2

The figures appear small in both cases, but it must be remembered that the rates are calculated upon the total births, whereas only a proportion of these were attended by registered midwives, many having been attended by medical men, or by unregistered midwives, who are not yet entirely barred from work. It is also important to note that, although the records cover a period of 12 months, the number of notifications sent in was much smaller than it should have been owing to ignorance on the part of the midwives in the first instance regarding the rules to be observed. Again, included in the areas covered by the returns in this case are the rural districts and one or two small non artisan towns. All these disturbing circumstances, however, are equally operative in both areas, and the figures, so far as they represent the position, may be said to be comparable. When the Act has been longer in operation and the midwives become better informed regarding the rules the number of notifications sent in will no doubt greatly increase and I also hope in time to obtain further and more exact data for comparison.

So much for the effect of the practice of married women working in factories upon the infantile mortality. I would point out, however, that the damage done cannot entirely be measured by mortality figures, for these take no account of the impaired vitality of the infants who manage to survive to swell the ranks of the degenerate.

If, then, the injury is as great as we believe it to be—and this can hardly be disputed having regard to the evidence adduced in endless official reports as well as the findings of special commissions—one is inclined to ask, Why should it still be necessary to agitate for the adoption of remedial measures? Surely public opinion is now sufficiently ripe for legislative interference, especially in view of the fact that the State already concerns itself regarding the conditions of employment in trades which are detrimental to the health of the workers. But if humanitarian arguments alone do not afford sufficient incentive for action will not the less unselfish desire to counteract the effect of the diminishing birth-rate serve as a more potent argument having regard to national prosperity? But, convinced though we may be of the need for State interference, to make a practical suggestion regarding the form it shall take is for many reasons by no means easy. Clearly the efficient remedy would be to prevent married women from working in factories or away from home unless they are in a position to show that necessity compels them to do so. Such a claim would with reason frequently be advanced, but I am confident that in the majority of cases there is no real need for married women at the child-bearing age to engage in work away from home, and, if this be so, enforced restraint would merely result in a smaller sum per week being available for the husbands' indulgence, a result which in itself is much to be desired. In this, as in most matters, however, we shall probably have to be satisfied in the first instance with less than we know to be desirable. The restriction now imposed by law of one month's abstention from work after her confinement is advantageous to the mother but it does not materially benefit the child. If, however, the restriction extended to three months the probability is that the mother would suckle her child during that time and thus the most precarious period of the infant's life would be tided over and the chances of subsequent survival would be considerably enhanced. How to prevent mothers from working previously to their confinement is a more difficult matter and to attempt to enforce any specific restrictions would, for obvious reasons, be found to be impracticable. On the other hand, there is no reason why the need should not be recognised and provided for, it being left to the factory medical officer to determine the time in each case when pregnant women shall give up work.

Stafford.

THE INCREASE OF THE POWER OF LOCAL AUTHORITIES WITH REGARD TO MILK-SUPPLY.[1]

BY A. K. CHALMERS, M.D. GLASG., D.P.H. CAMB.,
MEDICAL OFFICER OF HEALTH OF THE CITY OF GLASGOW.

THE object of this discussion is to consider what alteration in existing legislation seems to be necessary to enable local authorities to insure the provision of a pure milk-supply. At present milk-supplies are controlled by the Dairies, Cowsheds, and Milk Shops Order and by certain clauses in the Public Health and Sale of Food and Drugs Acts. These are of general application but the last named, as applied, has usually reference to variation in the normal constituents of milk present in a particular sample, while the clauses of the Public Health Acts aim at preventing the sale of milk which has, or is likely to, become infected. In addition several larger towns in England possess further powers on the lines of the Manchester milk clauses. These deal with specifically infected milk and their object is therefore akin to that of the clauses of the Public Health Act. They refer to tuberculosis of the udder; and in Scotland there are the somewhat parallel provisions in certain adoptive clauses of the Burgh Police Act, 1903. It is therefore solely through the provisions of the Dairies Order that local authorities are enabled to deal with the sanitary condition of milk premises and to take such steps as seem likely to prevent the infection or contamination of milk.

It is unnecessary here to consider in any detail how the above purposes are to be accomplished. It is sufficient to note that in general their aim is to secure the health of the stalled animals and cleanliness in the production and distribution of milk. Certain structural and sanitary requirements must be observed and a prohibition is placed on the handling of milk by persons suffering from infectious disease. Contamination, so far as it is likely to arise from structural defect in the premises, is to be prevented; and the milk of animals suffering from certain diseases is to be withheld from sale. Chiefly, however, the Order placés in the hands of local authorities power to frame regulations for controlling the conditions under which milk is produced and sold within their several districts. Everything therefore which tends towards stringency in the form, or efficiency in the application, of these regulations depends on the view taken by a local authority of its responsibility. Some make considerable effort, others are satisfied with a less exacting standard; in others the power to regulate has been left in abeyance.

Through the courtesy of the Local Government Board for Scotland I am able to introduce here a statement of the number of local authorities who have there availed themselves of this power:—

Information as to the Number of Local Authorities that have adopted Dairy Regulations in Scotland.

Local authorities.	Landward.	Burghal.	Total.
Number of local authorities in Scotland	107	205	312
Number of local authorities that had regulations in force *prior* to the coming into operation of the Dairies Order, 1899	79*	87†	166§
Number of local authorities that have adopted regulations *subsequently* to the coming into operation of the 1899 Order	3	52	55
Total number of local authorities that have dairy regulations presently in force	82	139	221

* Of these seven revised their regulations after the coming into operation of the Order of 1899.

† Of these 14 revised their regulations after the coming into operation of the Order of 1899.

§ Of these 21 revised their regulations after the coming into operation of the Order of 1899.

Mr. Power, principal medical officer of the English Local Government Board, has informed me that of 1134 urban district councils in England and Wales 804 (approximately) have adopted the regulations, while of 657 rural district councils about 364 have done so.

Limited scope of present regulations.—A moment's reflection on the history of dairy legislation will make it clear why, despite all our provisions, there should still be a demand for increased power of control. In point of time the conception that disease might be spread by water anticipated by a few years the parallel conception that it might also be spread by milk. And as the diseases which afforded the earlier illustrations in both cases were of the major epidemic sort our dairy legislation was devised against disease in the concrete and on the assumption that the evidence of its presence was written in characters which could not be mistaken. So that when the Dairies Order prohibited anyone sick of an infectious disease from handling milk it had in view the dairyman's family and the more obvious risks arising from the storing of milk in vessels kept in a living apartment; the cleansing of milk vessels in a polluted water-supply, or the alternate use of the milk scullery as a domestic washing-house. And as with diseases of the dairyman, so it was with diseases of the dairy stock. Cattle plague, pleuro-pneumonia, and foot-and-mouth disease represented until quite lately the only diseases of cattle which debarred their milk from sale for human food, and although tuberculosis of the udder has now been added, we do violence to our knowledge of the laws both of physiology and of disease by assuming that any form of acute febrile disease in a milk animal other than these named is without pathological significance or can fail to influence the character of the milk yield while the disease continues.[2] For example, septic and acute gastro-intestinal affections in animals, non-tuberculous affections of the udder, teat eruptions, &c., have still no place in dairy legislation, although all of them have at one time or another been demonstrably associated with disease in the milk consumer.

All this notwithstanding, it is not my intention to suggest that dairy legislation has failed to accomplish considerable reform where local authorities have been disposed to make use of their powers. But during the years since the Order was framed the whole pathology of dirt has acquired a new significance and its bearing on the causation of disease has rapidly outstripped our legal phraseology. Justice, indeed, requires us to admit that local authorities have as a rule failed to make useful application of this knowledge; and it is to some of the larger milk companies in this country and abroad that we must go for illustration of successful application, to the technique of the dairy, of the teachings of the research laboratory. For while administrative effort has almost too exclusively confined itself to producing reform in the structural environment of the milk-supply and only in the actual presence of disease has concerned itself to any great extent with the habits of the milker, commercial companies have shown us that the hygienics of the milk question depend quite as much on intelligent handling of the milk at, and after, production. It is the application of the surgeon's conception of cleanliness to the conditions of the milk traffic which these companies have taught local authorities; it is the adoption of measures to prevent contamination in a sense very different from that which obtained when the Dairies Order was framed which is so desirable—so necessary in fact; and it is this which I venture to suggest is impossible of attainment through the operation of any regulations which the present Dairies Order enables us to make. By these channels we have reached the conception of a pure milk-supply, free not only from the germs of specific disease obtained from the animal or its attendant but also from those other elements of contamination which lurk in the dust of byres and in every milking pail, milk churn, and dish through which the milk passes on its way to the consumer. I do not forget that it has been argued that the greater contamination of milk only occurs *after* it has reached the household of the consumer, but as evidence that the purveyor does not accept this as a satisfactory explanation of all the impurity we have only to remember the widespread use of chemical preservatives and the rapid growth in recent years of the practice of commercial pasteurisation. Both have one aim, and both, moreover, by implication range the purveyor among those who affirm that milk requiring either has been produced under conditions which are not satisfactory.

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[1] A paper read before the National Conference on Infantile Mortality.

The need for extension of the Dairies Order.—It is pertinent to ask why local authorities have failed to bring administrative requirements into line with this advancing knowledge of the sources of milk contamination. Of recent years the question of tubercle in dairy herds has almost excluded from view other important phases of dairy legislation. It explains also, I think, the inaction which we are here considering, for the Dairies Order is defective and the local authorities are inactive, not because of unwillingness, but from inability to accomplish what is so necessary. In particular the Order is too restricted in its definition of disease as affecting animals and fails probably most of all in the optional character of the provision contained in its Article 13 enabling local authorities to regulate the conditions of the milk traffic. Moreover, the scope of the regulations is limited and does not include the food or toilette of the animal or provide for the withdrawal from sale for food of milk obtained from animals undergoing treatment by drugs which are known to affect prejudicially the character of the milk. I suggest to you, therefore, that in any new Dairies Order disease in animals should, for the purposes of the present Article 15, include every general disease accompanied by fever, all acute affections of the gastro-intestinal tract, and inflammatory affections of the udder and teats.

Regarding teat eruptions there is, I think, evidence to suggest that even a superficial sore may add to the milk not only the morbid products common to all diseased surfaces but may afford a suitable culture field for bacillary growths with pathogenic properties; and I have before me notes of a recent series of sore throats presenting all the clinical features of diphtheria and occurring contemporaneously with the presence of such sores as I have indicated, from which an organism was recovered by culture which failed only in the final test of virulence to animals.

Notification by the cowkeeper of disease among his herd has its advocates, but the almost universal neglect of the parallel obligation imposed on the householder under the Infectious Disease (Notification) Act does not suggest that notification by the cowkeeper would be better observed. The more hopeful method would seem to be frequency of inspection followed by a penalty on conviction of any contravention of the regulations and the destruction of the animal when suffering from any infectious disease likely to affect its milk permanently. But it may be asked whether regulations of the character we are now considering are likely to insure a milk-supply which will reach the consumer in a fresh and wholesome state.

The technique of the modern dairy includes filtering and cooling, sometimes bottling and sterilising, and it is suggested that milk treated efficiently by either method can only be supplied at a prohibitive price. This can be true only so long as a fractional portion of the supply is so treated. Extend the demand for it and by coöperation the economic difficulties of the milk producers on a small scale will disappear. And the way to extend the demand is by the creation of an educated public opinion which this Conference will, we hope, do something to further. But more would seem to be necessary. Administratively the principle of empowering one local authority to interpose between another local authority and its responsibilities is, I think, objectionable and only excusable on the plea of hopeless remissness. There can be no doubt, moreover, that the consumer of the milk is the more likely to have his critical faculty highly developed and hence regulations and customs deemed satisfactory by a rural authority may quite reasonably fail to gain acceptance in a neighbouring town. If, then, the larger neighbours are to maintain a policy of non-interference, are they to remain inactive?

Is it not the case that knowledge regarding the dust impurities in milk is steadily pointing in the direction of a bacterial standard of purity, that some organisms are inoffensive, while others are highly offensive in origin, and that in some countries summary destruction follows the discovery of any milk found on sale at a temperature exceeding a given maximum? I suggest to you that regulations of this character would form a most efficient stimulus to reform in dairy methods. On such lines we must, I think, ultimately reach the provision of a pure milk-supply, but meanwhile voluntary action on the part of local authorities would accomplish much.

We have before us illustration of the success which has attended a system of certifying milk produced and distributed under rigidly hygienic conditions, and were the local authorities of the large towns in this country to agree upon voluntary registration of such dairies as observed similar precautions, and to issue certificates which would form a guarantee of the character of the milk we should have begun to level up the standard of our milk-supplies.

I have said nothing regarding the difficulty which certain corporations have experienced in financing infants' milk depôts. In Scotland this difficulty has not been felt, and although the Milk Depôts (London) Bill of last year, which would have legalised the establishment of milk depôts by the metropolitan boroughs, was dropped, the principle has, I believe, been embodied in the Borough of Woolwich Act of this year.

The sediment in milk.—As illustration of the impurity, which it should be the object of regulations to prevent, I submit a statement prepared by Dr. R. M. Buchanan, bacteriologist to the corporation of Glasgow, of the microscopic and bacterial characteristics of some sediment which I caused to be obtained from milk produced on farms where considerable effort is made to conform with existing regulations. This fact explains, I think, the relative smallness of the volume of sediment recovered, although it scarcely affects its character. It is our practice in Glasgow to pass all the milk supplied to the Infant Milk Depôt through an electrically driven separator and the sediment of 150 gallons was examined on several successive days. Dr. Buchanan's description is as follows:—

The five deposits submitted consist of repulsive pultaceous masses, composed of greyish dung like material, interspersed with hairs, and covered with dirty greyish slime. Two of the samples selected for detailed examination presented the following appearances

Microscopical examination.—(*a*) Greyish dung like material showed many dust-like particles of an indefinite nature black, yellow, and brown; fragments of vegetable fibres—a few colourless but majority yellowish brown and some apparently partly digested; some semi crystalline translucent masses varying in size; squamous epithelial cells in large number; leucocytes a few; fat globules a few; and hairs a few. (*b*) *Dirty greyish slime.*—Consisted mainly of leucocytes; numerous fat globules and fatty particles; squamous epithelial cells were abundant but scarcely any dust particles or vegetable fibres were detected. Bacteria numerous as compared with the number in the greyish material and comprised cocci, short bacilli, and a few streptococci.

Bacteriological Examination.

—	Deposit of May 29th, 1906.	Deposit of May 31st, 1906.
Bacterial content	Estimated at 145,080,000 per gramme.	Estimated at 142.200,000 per gramme.
Bacillus enteritidis sporogenes.	Absent in 1 milligramme	Absent in 1 milligramme.
Bacillus coli.	Absent in 1 milligramme	Absent in 1 milligramme.
Coliform bacilli (bacillus lactis aerogenes type).	Estimated at 2,620,000 per gramme.	Estimated at 420,000 per gramme.

This sediment on being weighed by Mr. Harris, corporation chemist, was found to average 135 grammes, or 4·76 ounces when moist, whilst on drying at 100° C. it was reduced to 3 01 ounces. This represents over the total volume of milk an average of 8 8 grains of dried material per gallon, or rather more than one and a half grains per pint.

Glasgow.

THE STERILISATION OF TUBERCULOUS SPUTUM AND ARTICLES INFECTED BY THE TUBERCLE BACILLUS.

BY THOMAS KIRKLAND, M.INST C.E ,
CONSULTING ENGINEER TO GUY'S AND BROMPTON HOSPITALS,

AND

MARCUS S. PATERSON, M.B., B S DURH., M.R.C.S. ENG.,
MEDICAL SUPERINTENDENT OF THE BROMPTON HOSPITAL SANATORIUM AND LATE RESIDENT MEDICAL OFFICER AT THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON, LONDON, S W.

UNTIL the year 1905 it was the custom at Brompton Hospital to destroy all sputum in a cremator. The cups in which the sputum was collected were washed by hand and sterilised. The patients were supplied daily with new handkerchiefs which after use were burnt. These methods seemed undesirable to the medical staff for the following reasons: (1) the risk of infection to those employed in sterilising, &c. (2) the considerable expense entailed in keeping the cremator in repair; and (3) the cost of special handkerchiefs. We were therefore asked to devise a scheme by which these objections might be overcome.

Turning our attention first to the question of the sterilisation of the sputum we decided that it would be advisable, if possible, to abolish the cremator and to substitute a receptacle in which the sputum would be sterilised by the action of steam at a temperature of 250° F. Before this method could be advised it was necessary to determine what the action of the steam on the sputum would be, as if it had the effect of coagulating the sputum the portions thus coagulated might escape sterilisation, and further, such unsterilised coagulated particles of sputum might adhere to the sides of the apparatus and thus become a source of infection. In order to test the matter we experimented on sputum placed in a small iron vessel under the pressure necessary to keep the steam at the required temperature and found that the sputum, so far from coagulating, tended to become more liquid the higher the temperature, and, moreover, did not adhere to the sides of the apparatus The sputum so treated was afterwards injected into guinea pigs and as the result of three independent observations it was found that the guinea-pigs so inoculated were not infected with tuberculosis, whereas control animals injected with unsterilised sputum in all cases developed the disease.

Upon the evidence of these experiments the committee of management decided to have two steam sterilisers constructed of the capacity of 20 gallons and they have now been in use for 14 months.

The sputum treated in these sterilisers has been tested by Mr. L. S. Dudgeon with the following results:

I.—*Control animals.*—Two guinea pigs were injected. They were killed at the end of seven days Post mortem they showed tuberculous abscesses at the seats of inoculation and local glands. Tubercle bacilli were present in the pus and in the glands. Two guinea-pigs were injected and were killed at the end of 14 days. Result: There was general tuberculosis of the viscera below the diaphragm and of all the glands on the injected side. Tubercle bacilli were present in the glands. In each of the following two guinea-pigs were injected.

II.—Sputum raised to 250° F. Result: No tuberculosis at the end of five weeks.

III.—Sputum raised to 212° F. for 20 minutes. Result similar to II.

IV.—Sputum raised to boiling point for ten minutes. Result similar to II.

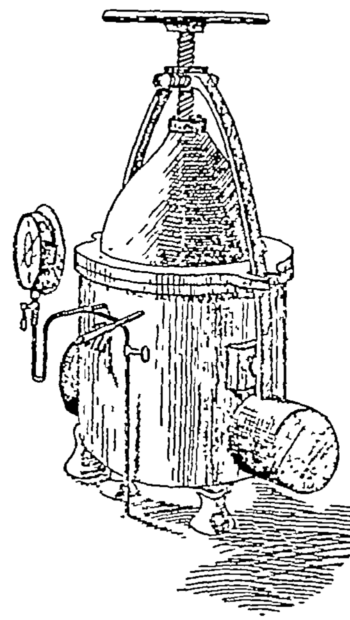
V.—Sputum raised to boiling point for five minutes. Result similar to II.

VI.—Sputum raised to 200° F. Result similar to II.

Therefore in no case did any of the guinea-pigs other than the controls develop tuberculous foci.

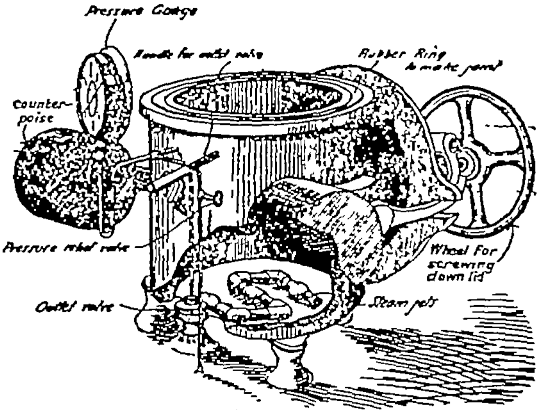
Each steriliser consists of an iron vessel with a moveable lid (Figs. 1 and 2), having at the bottom two steam jets so arranged that a circular motion is given to the contents. The sputum having been poured into the vessel the lid is screwed down and steam is allowed to enter until a pressure of 15 pounds (corresponding to a temperature of 250° F.) has been obtained. The contained sputum is allowed to boil under the action of steam for a period of 20 minutes, after which it is allowed to cool to a temperature somewhat above 100° F. and is emptied into the drain by opening a valve in the bottom of the steriliser, arranged so that all the contents can drain away.

FIG. 1.



Sputum steriliser with cover on.

FIG. 2.



Sputum steriliser with cover off.

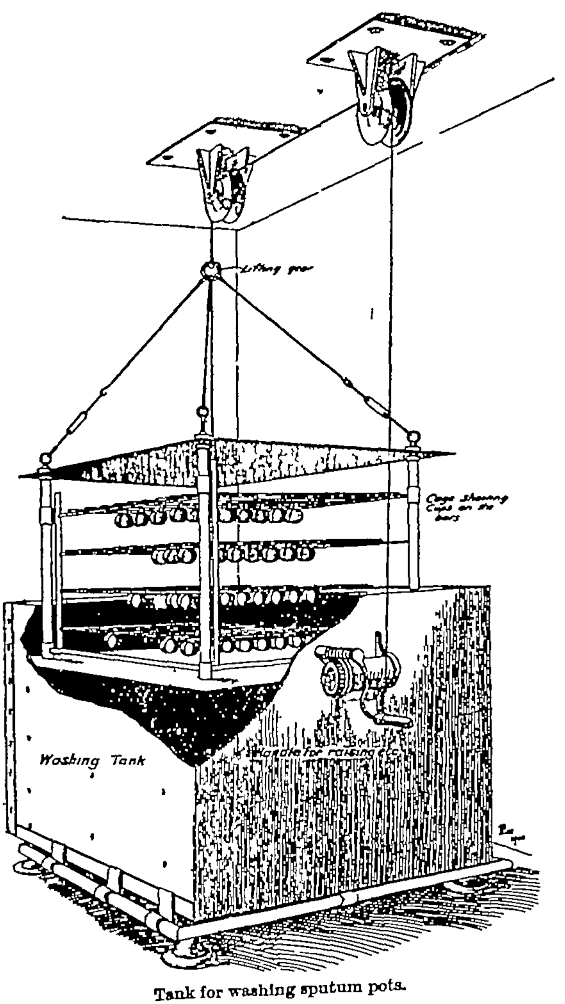
Method of cleansing the sputum pots.—The sputum pots, as has been stated, were formerly cleansed by hand. Each pot was separately washed by the man appointed for this duty, who for the sake of cleanliness and the avoidance of infection was provided with an apron, gloves, and boots of indiarubber which after use were sterilised. This procedure not only took considerable time but subjected those employed to the risk of infection if they were at all careless. Upon our suggestion and as a means of overcoming these objections the following method of sterilising sputum pots was proposed and adopted.

A large iron tank (Fig. 3) was constructed, having the necessary valves for admitting water and steam and a valve in the bottom of the tank through which the contents could be emptied into the drain. Inside the tank is a cage which can be raised out of, or lowered into, the tank at will. This cage is constructed of brass tubes framed and braced together. On the horizontal tubes the sputum cups are suspended by their handles and the covers of the cups are placed in suitable trays provided in the cage. For the purposes of sterilisation and cleaning, the cage full of soiled sputum cups and covers is lowered into the tank. Water is admitted into the tank and boiled by the admission of steam. After boiling for 20 minutes this water is emptied and the process is repeated. The cage is then raised and the cups and covers are removed. By this method much less handling of the cups is required and the cleaning of both cups and covers is found to be more thoroughly performed than when washed by hand. The saving of time effected by this method of washing the cups enables the same staff as was formerly employed in collecting and washing the cups to wash the handkerchiefs in addition.

The disposal of handkerchiefs—The old method of disposing of soiled handkerchiefs by burning them after being once used was naturally a costly and wasteful one and we therefore had to consider whether it would be practicable to sterilise them and thus render them fit for further use. It was urged that if handkerchiefs were submitted to any such method of sterilisation as has been detailed above they would be so stained and otherwise injured in the process that the extra amount of use which might be expected of them would hardly warrant the expense of the apparatus required. By the use of the test apparatus, which we have already alluded to, it was proved that handkerchiefs could be so sterilised 12 times and afterwards washed by hand without suffering any material damage. The committee therefore sanctioned the construction of the following plant for sterilising and washing handkerchiefs: (1) a combined steriliser and washing machine; (2) a hydro extractor; and (3) a calender.

The following is the procedure at present in use. The soiled handkerchiefs are conveyed from the wards in covered pails and are at once placed in the sterilising and washing machine where they are first sterilised and afterwards washed. After washing they are taken out and placed in the hydro, which, with the calender, is in a separate room. After being dried in the hydro they are passed through the calender and are then folded and returned to the wards. It has been found that handkerchiefs costing 11*d.* per dozen may be submitted to this method of sterilisation and washing about 50 times and will last for about four months. It is probable that a somewhat better quality of handkerchief would stand longer and so might prove rather more economical. At the Frimley Sanatorium, where there is a laundry with washing machines, but not a special combined steriliser and washing machine, both sputum and handkerchiefs are sterilised in the sputum steriliser. While the attendant is engaged in sterilising the sputum flasks and pots the handkerchiefs are allowed to soak in cold water to which soap and soda have been added. As soon as the sputum is disposed of the handkerchiefs along with the liquor are sterilised in their turn, a temperature of 250° F. being used, and after sterilising are dried. At the end of a week about 700 handkerchiefs have been sterilised and these are then removed to the laundry and washed in the ordinary way

FIG. 3.



Tank for washing sputum pots.

The drains from all the machines above alluded to are suitably trapped and ventilated. A sputum steriliser exactly similar to the pattern already described has been erected at the King Edward VII Sanatorium

Our experiments upon the sterilisation of sputum seem to have established a fact which has, up to the present, as far as we are aware, not been credited—namely, that articles infected with the tubercle bacillus may be rendered sterile at a temperature of 200° F. From this it follows that any articles infected with the tubercle bacillus may with certainty be rendered sterile by boiling them in water for half an hour under atmospheric pressure.

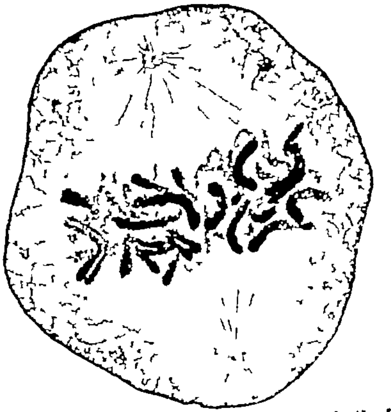
In conclusion, we desire to express our thanks to Dr H. Batty Shaw and Dr. E J. Steegmann for the help they have given us in conducting the first inoculation experiments, and to Mr. Leonard S. Dudgeon for his kind assistance in the sterilisation experiments with the new sputum steriliser

OBSERVATIONS ON THE LIFE-HISTORY OF LEUCOCYTES.[1]

BY C. E WALKER,
ASSISTANT DIRECTOR OF THE CANCER RESEARCH LABORATORIES, UNIVERSITY OF LIVERPOOL.

WHEN the fertilised ovum of a multicellular animal or plant segments a definite number of rod-like bodies appear during the process of division. These bodies are known as chromosomes. At each subsequent division of the cells in the building up of the body of the organism the same number of chromosomes appears. This number is constant in the species. Thus in the cells forming any of the body tissues of man there are 32 chromosomes, of a mouse 24, and so on. This continues in the cells of animals and plants in the building up of all the tissues until the time approaches when definite sexual elements are to be produced. At this time certain cells go through a particular type of division in which the number of chromosomes is reduced to one-half of what is found in the somatic or body cells. Thus the sexual elements possess only half the somatic number of chromosomes, and consequently when fertilisation takes place, that is, when the male and female sexual cells fuse, the somatic complement of chromosomes is regained, and a new individual is created. For example, in the case of man where the normal somatic number is 32 a spermatozoon with 16 fuses with an ovum also with 16 chromosomes, the result being that the division figure observed in the first segmentation of the fertilised ovum exhibits 32 chromosomes and this number is maintained in all the subsequent divisions until the whole body is built up and until certain cells again go through the reduction process in order to produce sexual elements. This process of reduction includes two generations of cells—that is, two divisions following each other are involved before the process is complete. The whole has been called the maiotic process and the two divisions or generations of cells involved are the first maiotic (heterotype) and the second maiotic (homotype) divisions

FIG. 1.



A somatic division figure The chromosomes are in the form of their rods, U s or V's

In animals the cells resulting from the second maiotic division are converted directly into sexual elements without any further division In plants, on the other hand, there may be an indefinite number of cell generations following the second maiotic division and but few of these are destined to become sexual elements. The majority form tissues with somatic characters and functions, though, having passed through the maiotic phase, they, of course, possess only half the somatic number of chromosomes. It has therefore always been assumed that herein there existed a difference between the cycle of cell generations of multicellular animals and plants, for while in animals those cells which have reduced are all converted directly into sexual elements, in plants only a few such cells may become converted into sexual cells, the rest performing the functions of supporting and nourishing the few. Moreover, in plants apparently any number of generations of cells may intervene between reduction and the production of sexual elements.

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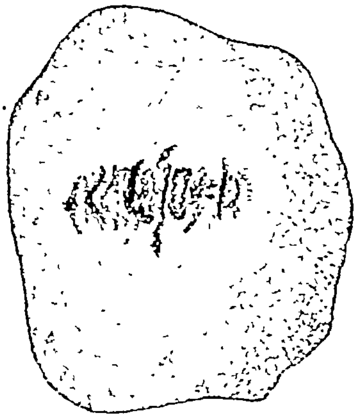
[1] Abstract of a paper read before the Royal Society on Jan. 18th, 1906

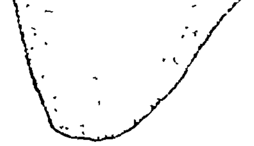
FIG. 2.



A first maiotic (heterotype) division figure. There are one-half the number of chromosomes found in the somatic division. The chromosomes are in various definite forms.

The observations recorded in a communication to the Royal Society on the Life History of Leucocytes by myself claim to show that in the generations of leucocytic cells we have phenomena which run more or less parallel with the post-maiotic (reduced) generations that exist in prothallial tissue in plants. It is first explained that the term leucocyte is intended to include all the wandering nucleated cells of the animal body. In the male sexual gland the sequence of events among those cells that are destined to be sexual elements is as follows. Up to a certain point the cells in question divide in a similar manner to the cells forming the ordinary body tissues and exhibit the full somatic number of chromosomes. This is known as the somatic type of division. The somatic are followed by amitotic divisions. That is without the appearance of any spindle figure or chromosomes —a similar division, in fact, to that of a drop of viscous fluid into two drops. After this come further somatic divisions, followed immediately by the first and second maiotic divisions. The cells resulting are converted directly into sexual elements. Among the leucocytes and their immediate ancestors a very similar series of events occurs. First we have amitosis and somatic mitoses alternating with each other just as in reproductive tissue. Then follow divisions which are similar to the first and second maiotic divisions, where the chromosomes are reduced in number to one-half of that found in the somatic cells. Here the similarity to animal reproductive cells ends and that to the reduced tissues in plants begins. Apparently there is an unlimited number of post-maiotic generations among the leucocytic cells. Furthermore, in another communication to the Royal Society[2] it is claimed that these reduced leucocyte cells may produce tissues possessing characters and functions similar to somatic tissues. If these observations are correct we have therefore a further parallel between the phenomena exhibited by animal and vegetable cells. The reduced cells of both animals and plants are out of coördination with the soma from which they have been derived. I consider that the evidence in this respect with regard to leucocytes is in favour of the correctness of my observations.

FIG. 3.



A second maiotic (homotype) division figure. The chromosomes are in the same form as in the somatic division but are found to be only one-half the somatic number. This type of division is the most common among the cells of the bone marrow.

The bearing of these observations upon what happens in malignant growths may here be mentioned. It has been recorded[3] elsewhere that one of the earliest phenomena in the occurrence of malignant tumours is the invasion of the tissue cells by leucocytes with the subsequent common division of both nuclei. This produces a race of hybrid cells, half tissue cell, half leucocyte. It has also been recorded by the same authors that the cells of malignant growths reduce in a similar manner to the cells of reproductive tissues. All the forms of cell division seen in malignant tissue are also seen in normal leucocytic tissue, and both leucocytes and malignant tissue are out of coördination with the true soma. According to the present observations, then, the hybrid cells act just as would be expected and possess the characteristics, to a certain extent, of both their ancestors.

Liverpool.

ACUTE LOBAR PNEUMONIA IN A PYGMY.

BY W. HERBERT GREGORY, M.D., C.M. EDIN.

ON the evening of Oct. 14th, 1905, I was asked by Colonel J. J. Harrison to see one of the pygmies whom he brought back from the Ituri Forest. I found the patient, Matuba by name, a male, stated to be aged 23 years, lying on a mattress.[4] His temperature was 103·2° F., his pulse was 120, and his respirations were 20. By the aid of an interpreter it was found that he complained of pain in the left infra-axillary region. Three days before the patient had suddenly stopped dancing in the middle of a performance, complaining that he was tired and that his back hurt him. He was seen by a medical man and treated for a sprained muscle. No evidence of a rigor could be obtained, but the difficulty of getting any evidence of prodromata was considerable.

On Oct. 15th the temperature was 103°, the respirations were 24, and the pulse was 118, with a dry hacking cough. There was a small amount of albumin in the urine. On examination, slight dulness with some fine crepitations and rhonchi were found over the base of the left lung. There were also rhonchi over the right base, but these disappeared in a day or two. On the 16th the dulness had increased and the inflammation finally involved the whole of the lower lobe of the left lung. He was at first treated with a mixture containing one and a half drachms of antimonial wine, two drachms of spirit of nitrous ether, three ounces of solution of acetate of ammonia and water to make up six ounces, the dose being half an ounce every four hours. This was afterwards changed to a powder containing one grain of sulphate of quinine, ten grains of citric acid, and some sugar of milk, given every four hours in half an ounce of a mixture containing two drachms of bicarbonate of potash, 36 grains of carbonate of ammonia, and half an ounce of syrup of orange dissolved in six ounces of water. The diet consisted of milk, broth, and eggs. The first named was taken badly at first, as the patient had never tasted it before, but the addition of alcohol in the form of whi ky quite overcame this difficulty. During the fourth and fifth days the patient was very ill with great cyanosis and difficulty in breathing along with troublesome cough. The pulse became intermittent and oxygen and strychnine had to be administered and alcohol given freely. The case was a severe one but followed the usual course of an acute lobar pneumonia, the crisis occurring on the sixth day, when the temperature dropped from 103·8° to 97·2° in 18 hours. There was profuse sweating during this stage. There was a rise to 102 2° the following night, but after this the patient had an uninterrupted recovery.

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[2] On the Origin of the Sertoli or Foot-cells of the Testis, Walker and Embleton, Proceedings of the Royal Society, 1906.

[3] Farmer, Moore, and Walker: On the Behaviour of Leucocytes in Malignant Growths, Transactions of the Pathological Society of London, 1905. Ibid., on the Cytology of Malignant Growths, Proceedings of the Royal Society, 1906.

[4] See in THE LANCET, August 12th, 1905, a paper by Dr. G. E. Smith and Dr. A. Loos upon Matuba and his companions. Matuba's age was then estimated by various osteological data as about 18 years.

An examination of the sputum (which had the typically rusty colour at first) was made by the Clinical Research Association and a certain number of pneumococci was found. An attempt was made to examine the blood for leucocytosis, but the difficulty in obtaining a specimen was so great that the idea had to be abandoned. No herpes was seen round the lips during the case. As may be imagined, the task of nursing was no light one and great credit is due to the nurse in charge of the case for the admirable way in which she managed the patient. The patient was very good throughout, although at first he was suspicious of everything done for him.

During the convalescence, which was a good one, the patient would sit for hours playing with his bow and spear, going through all the incidents of the chase. The whole case followed the course of an acute pneumonia in a white man, but the unusual type of patient has led me to report it.

Beverley.

INTERNAL SECRETION AND THE DUCTLESS GLANDS.

BY SWALE VINCENT, M.B. LOND., D.SC. EDIN.,
PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF MANITOBA, WINNIPEG, CANADA.

PART II.[1]

THE THYROID AND PARATHYROID GLANDS.

A. Effects of ablation and disease.—No attempt will be made to give a complete account of the history and literature of the thyroid gland. Our knowledge of the subject is not based upon so secure a foundation as a perusal of modern text-books would lead one to suppose and there can be little doubt that there has been in some directions undue haste in correlating clinical experience with the results of experimental physiology. The present state of our knowledge has been reached through different modes of investigation, some of which will now be dealt with in order. As regards the effects of removal of the organs, perhaps the most generally accepted among recent views may be briefly stated as follows. As regards vital importance, the function of the thyroid gland is subsidiary to that of the parathyroids. Removal of all the parathyroids from an animal, even if the thyroid be left intact, invariably proves fatal within a short time, and this with typical nervous symptoms described under the name of "tetany." Removal of the thyroid, on the other hand, gives rise to an entirely different train of symptoms stated to be those of "post-operative myxœdema" or of "cachexia strumipriva."[2] According to this modern conception, the divergent results obtained by the older experimenters in different classes of animals were apparent rather than real, they having failed to appreciate the anatomical differences, and having, in fact, performed a different operation in each case. This theory of the supreme importance of the parathyroids was first put forward by Gley[3] who rediscovered the (external) parathyroids[4] but was more definitely formulated and elaborated by Vassale and Generali.[5] The extreme importance to life of the parathyroids has also been affirmed by Rouxeau,[6] Moussu,[7] Welsh,[8] and Capobianco and Mazziotti.[9] The question as to the extreme importance of the parathyroids cannot yet be considered as settled. Kishi[10] found that dogs and cats often die although the parathyroids be left behind. Vincent and Jolly[11] found further that removal of all four parathyroids was not necessarily fatal. We were furthermore unable to confirm some other statements which are very commonly accepted. The general conclusions reached were as follows: "1. It cannot be truly said that either thyroids or parathyroids are essential for life, since it is frequently possible to remove either or both without causing death. 2. We find, as others have done, that fatal results when they occur are not due to injuries to surrounding structures accompanying the surgical interference but must be referred to absence of the glands in question[12] 3. No statement, universally applicable throughout the animal kingdom, can be made as to the importance of the glands in question, whose functions appear to differ very widely in different classes of animals. Rats and guinea-pigs do not seem to suffer at all as the result of extirpation.[13] Monkeys only show transient nervous symptoms.[14] Dogs and cats frequently, but by no means invariably, suffer severely and die. In foxes symptoms come on with remarkable rapidity and death is correspondingly early. 4. The diversity of results obtained in different classes of animals is not to be attributed to anatomical but to physiological differences. 5. In no animal have we been able to induce symptoms resembling myxœdema.[15] 6. In young animals, although extirpation of the thyroid causes a temporary cessation of growth, we find that this is not necessarily accompanied by symptoms of a cretinoid nature. 7. Myxœdema and cretinism must then, we think, be due to causes more complex than simple thyroid insufficiency. 8. When the thyroid is removed the parathyroids appear capable of functionally replacing it to a certain extent and their histological structure changes accordingly."

Perhaps the point of most general interest in the above results is that myxœdema was never induced, even in monkeys. This result differs from that obtained by Horsley,[16] Murray,[17] and Edmunds,[18] who state that it is possible by operation to induce myxœdema in monkeys. Our animals were kept at ordinary indoor summer temperature and they showed no symptoms which could be described as myxœdematous. In some cases it was impossible to distinguish the operated monkeys from the controls and in a photograph which was taken of an operated animal and a normal one side by side the operated animal looked the healthier of the two. One of the animals, it is true, suffered three days after the operation from slight muscular tremors but completely recovered. Some of them suffered from catarrh and one died from some laryngeal affection and it seems probable that, as in the case of other animals, removal of the thyroid gland leaves monkeys in a condition in which they are less capable of resisting disease. We do not pretend that the monkeys were quite unaffected by the operation. They were, as a rule, perhaps somewhat quieter than normal; but we do insist that the striking feature of myxœdema in man—viz., swelling of the subcutaneous tissues—was totally absent.

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[1] Part I. was published in THE LANCET of August 11th, 1906, p 348.

[2] Kocher, Archiv für Klinische Chirurgie, 1883, Band xxix., S. 254; Reverdin, Revue Médicale de la Suisse Romande, 2ème année, 1882, p. 539; 1883, Nos. IV.–VI., p 169; 1887, pp. 275, 318.

[3] Comptes Rendus de la Société de Biologie, 1891, p. 843

[4] These bodies were first described by Sandström, Upsala, Läkareförenings Forhandlingar, 1880, Band xv. Reference in Schmidt's Jahrbuch, 1880; Hofmann-Schwalbe's Jahresbericht, 1881; Virchow und Hirsch's Jahresbericht, 1880.

[5] Rivista di Patologia Nervosa e Mentale, 1896, vol. i., fasc. 3 and 7; Archives Italiennes de Biologie, 1896, tomes xxv. and xxvi., p. 459.

[6] Comptes Rendus des Séances de la Société de Biologie, 1897, p. 17.

[7] Ibid., p 44.

[8] Journal of Anatomy and Physiology, 1898, p. 401; Journal of Pathology and Bacteriology, 1899.

[9] Giornale Internationale delle Scienze Mediche, 1899, anno xxi.

[10] Virchow's Archiv, 1904, Band clxxvi, S. 260.

[11] Journal of Physiology, vol xxxii., 1904

[12] This was the result of some few experiments in which injury to surrounding structures was done without removal of either thyroids or parathyroids. No typical symptoms were observed in these cases but there is still a possibility that if a larger number of experiments were performed and the necessary conditions were understood some of the nervous symptoms may after all not be due to absence of the glands. This possibility is suggested by the fact that tetany may come on at variable periods from five hours to a week after operation.

[13] Such extirpation including parathyroids as well as thyroids.

[14] In a new series of observations by Mr. Jolly and myself the results of which have not yet been published, one monkey died within 24 hours after the operation with what appeared to be typical tetany It was found, however, post mortem that the recurrent nerve and other structures had been included in one of the ligatures.

[15] I.e., there has been no swelling of the subcutaneous tissues.

[16] Proceedings of the Royal Society, 1884, No. 235, and 1886; Brit. Med. Jour., Jan. 17th and 31st, 1885; Internationales Centralblatt für Laryngologie, July, 1885; Comptes Rendus des Séances de la Société de Biologie December, 1885; Report of the Myxœdema Committee of the Clinical Society of London, 1889; THE LANCET, December, 1886; Brit. Med Jour., Feb. 8th and July 26th, 1890; Internationale Beiträge zur Wissenschaftlichen Medicin, Virchow's Festschrift, i., 1891.

[17] Diseases of the Thyroid Gland. London: Lewis, 1900

[18] Journal of Pathology, vols. iii., v., vi., and vii., 1896-1900; the Pathology and Diseases of the Thyroid Gland, Edinburgh and London, 1901.

It is important to note that removal of the parathyroids, included of course in the complete operation, has not proved fatal and if it should ultimately be determined that simple parathyroidectomy without injury to the thyroid is a fatal operation it will show that removal of parathyroids alone is much more serious than extirpation of thyroids and parathyroids together. This has, in fact, been alleged by some observers.

Of course, it is open to insist that somewhere in the body of the above-mentioned animals there were accessory thyroids or parathyroids which sufficed to maintain life after the removal of the main organs. We can only reply that a most careful search for such bodies has always been made and that in the absence of positive evidence their existence is a pure conjecture. Moreover, if accessory glands be so usually present, then the question as to the importance to life of the glands ceases to have the value hitherto attached to it.

Another point of importance in the above research is the observation that when parathyroids alone are left behind they appear to take on both the structure and the function of the thyroids. This will be referred to again in connexion with the question as to the relation between thyroids and parathyroids.

B. Artificial renewal of thyroid and parathyroid secretion.—1. By grafting. There can be little doubt that the leaving behind of a thyroid lobe, or even, according to the majority of authors, a very small shred of thyroid tissue, will suffice to keep the animal in good health. This observation naturally led to experiments in the direction of grafting. Schiff,[19] who was the first to perform in a systematic manner extirpation of the thyroid, was also the first to attempt grafting. But his grafts *quâ* grafts were not successful.[20] He, however, states that he succeeded in prolonging the life of his dogs after thyroidectomy, but this success may have been due, according to the modern conception, to the temporary supply of thyroid secretion furnished by the gland substance and analogous to a subcutaneous or intravenous injection of thyroid extract or to a process of feeding with thyroid substance. Schiff operated upon dogs with the thyroids of other dogs, two to five weeks before performing thyroidectomy. The grafts did not "take" and were gradually absorbed. Since the time of Schiff very numerous grafting experiments have been performed.[21] These were for a long time unsuccessful.[22] It was not until Eiselsberg's second publication [23] that any really satisfactory grafting experiments were recorded. This author found that in four cats the operation was completely successful, both from an anatomical and a physiological standpoint. A little later appeared a series of papers by Cristiani,[24] who was equally successful in 16 out of 19 rats in his earlier series of experiments and who afterwards performed a very large number upon many different species of animals. Pantaleone [25] was not so successful, while Munk [26] was only partially successful. Enderlen [27] and Sultan [28] obtained fairly good positive results. Cristiani,[29] by taking special precautions, succeeded in thyroid grafting in all species of animals in which he tried it. In order that the graft should be successful it is necessary that the organ transplanted should not be too voluminous. For small animals (rats, young weasels, &c.) one can graft entire lobes of the gland, but for larger animals it is necessary to divide the organ into flat or elongated slices. The thyroid graft carried out under these conditions and with the surgical precautions detailed by Cristiani not only does not become absorbed but actually increases according to the needs of the organism into which it has been grafted. Grafting may succeed not only when performed into a different part of the body of the same animal but also between different animals of the same species and sometimes also between different species and even families.[30]

The success of these grafting experiments in preventing the onset of symptoms after thyroidectomy is a very strong argument in favour of the view that the ill-effects following the extirpation are in reality due to the loss of the internal secretion of the organ and not to injury to nerves or other similar cause. In the experiments referred to above the graft was a "thyroparathyroid" graft. Some work has, however, been done in the direction of pure parathyroid grafts and apparently with some measure of success.[31]

Horsley [32] suggested that grafting should be tried in man to arrest the progress of myxœdema. This was carried out with partial success by Bircher [33] and by Bettencourt and Serrano.[34] But as in the case of Schiff's grafting experiments the grafted gland was in most cases absorbed and the beneficial effects were not permanent. Only in one case has the improvement lasted for more than a few months. This was in a case of myxœdema recorded by MacPherson,[35] in which all the symptoms disappeared after the operation and had not returned three years later.

2. *By injection of juice or extracts of the glands.*—Pisenti and Viola [36] appear to have been the first to employ experimental opotherapy. Vassale [37] and Gley [38] found that a temporary benefit accrued after thyroidectomy if the animal were subjected to an intraperitoneal injection of thyroparathyroid juice. But these results have not been obtained by all observers [39] and according to some writers the extract to be of any service must contain *parathyroid* juice. It is, indeed, stated that pure thyroid extract is actually harmful after cases of extirpation of both organs.[40] It has further been held that injection of parathyroid extract is of great benefit in preventing or postponing the symptoms due to absence of parathyroids.[41] Murray [42] also employed a glycerine extract of sheep's thyroid with which he treated monkeys after thyroidectomy. This author found that in some cases the symptoms disappeared, but in others there was only an improvement and death afterwards ensued with acute nervous symptoms.[43] He suggests that in the latter case the parathyroids were extirpated along with the thyroid, while in the former they were left behind,[44] and he says that it is not surprising that the parathyroid symptoms are not relieved by thyroid treatment.[45]

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[19] Revue Médicale de la Suisse Romande, 1884, p. 438.

[20] See Cristiani, Journal de Physiologie et de Pathologie Générales, 1901, p. 200.

[21] *Kocher* (Correspondenzblatt für Schweizer Aerzte, 1895) relates that he had in 1883 attempted grafting in the human subject after ablation and with some temporary benefit.

[22] Carle, Centralblatt *für Physiologie*, 1888, vol. ii., p. 213, No. 9; Drobnik, Archiv für Experimentelle Pathologie und Pharmacologie, 1889 vol. xxv., S. 135; Zuccaro, Prog. Med. di Napoli, 1890; Eiselsberg, Ueber Tetanie im Anschlusse an Kropfoperationen, 1890; Ferretti, Riforma Medica, 1891, vol. iv., p. 479; Sgobbo e Samari, Rivista di Clinica e Terapia, 1892; Canizzaro, Deutsche Medicinische Wochenschrift, 1892, S. 164; Ughetti, Riforma Medica, 1892, vol. iv., p. 675; Montandon, Congrès International de Médecine, Rome, 1894, 2, Path., p. 233; Bouchard, Association Française pour l'Avancement de Sciences, Paris, 1892, 1ère partie, p. 292.

[23] Wiener Klinische Wochenschrift, 1892, No 5, p. 81.

[24] Comptes Rendus des Séances de la Société de Biologie, 1894, p. 715, and 1900, p. 957; Archives de Physiologie, 1895, tome xxvii., p. 65; Journal de Physiologie et de Pathologie Générales, 1901, p. 204.

[25] Centralblatt für Chirurgie, 1897, p. 601 (abstract); Gazzetta degli Ospedali e delle Cliniche, 1897.

[26] Quoted from Cristiani, Journal de Physiologie et de Pathologie Générales, 1901, vol. iii., p. 204.

[27] Mitteilungen aus den Grenzen der Medicin und Chirurgie, 1898, Band iii.

[28] Centralblatt für Allgemeine Pathologie, 1898, vol. ix., p. 353.

[29] Loc. cit.

[30] Cristiani, V. Congrès International de Physiologie, 1901, Turin Sept. 17th–21st.

[31] Cristiani, Comptes Rendus des Séances de la Société de Biologie, 1900, p. 957; Progrès Médical, 1901, tome xiv., p. 235; Cristiani et Ferrari, Comptes Rendus des Séances de la Société de Biologie, 1897, p. 885; Ferrari, Thèse, 1897; Lusena, Riforma Medica, 1898, and XIV.; also Fisio-patologia dell' Apparecchio Tiro-paratiroideo, 1899, pp. 97, 98, &c.

[32] Brit. Med. Jour., 1890, vol. i., p. 267.

[33] Der Endemische Kropf, &c., 1883; Revue Médicale de la Suisse Romande, 1883, p. 596; also Volkmann's Sammlung Klinischer Vorträge (Chir.), 1890 No. 357, p. 3393.

[34] Association Français, pour l'Avancement des Sciences, 1890; abstract in Gazette des Hôpitaux, 1890, p. 859.

[35] Quoted from Murray: Diseases of the Thyroid Gland, 1900, part 1, p. 22.

[36] Atti e Rendiconti della Acad. Medico-Chir. di Perugia, 1890, 2 ma.

[37] *Rivista* Sperimentale di Frenatria, &c., 1890, vol. xvi., p. 439, fasc. 4; Archives Italiennes de Biologie, 1892, *tome* xvii., p. 173.

[38] Comptes Rendus des Séances de la Société de Biologie, 1891, p. 250; Archives de Physiologie 1892, vol. xxiv., p. 311.

[39] See Schwarz, Lo Sperimentale, 1892, mem. orig., p. 19.

[40] Pugliese, Gazzetta degli Ospedali e delle Cliniche, &c., Nov. 20th, 1898, No. 139, p. 1465. This observation may be compared with that of Lusena (loc. cit.), and of Vassale and Generali (Archives Italiennes de Biologie, 1900, tome xxxiii., p. 154), that the ill effects of parathyroidectomy are relieved by thyroidectomy.

[41] *Moussu*, Comptes Rendus des Séances de la Société de Biologie 1895, p. 867; Lusena, loc. cit.

[42] Op. cit.

[43] But monkeys frequently recover from the nervous symptoms even if no thyroid treatment be adopted.

[44] In most common species of monkeys, at any rate, the parathyroids are practically certain to be removed along with the thyroids.

[45] But it must be borne in mind that the thyroid extract would contain also parathyroid substance. He does not state, at any rate, that the parathyroids were cut away before the extract was made. The supporters of the view that the parathyroids possess a separate

3. *By administration of thyroid and parathyroid extract by the mouth.*—This method was first employed by Howitz,[46] E. L. Fox,[47] and Mackenzie,[48] and was soon universally adopted for the treatment of myxœdema. It has been found to be just as efficacious as injection intraperitoneally or subcutaneously.[49]

C. The question as to an intimate functional relationship between thyroids and parathyroids.—Some of the earlier observers looked upon the parathyroids as simply undeveloped portions of the thyroid gland. The actual transformation of parathyroid into thyroid tissue has been denied by the majority of investigators.[50] Gley, who was the chief supporter of the theory that the parathyroids were embryonic thyroids, subsequently abandoned this view and substituted for it a theory of a functional relationship between the two bodies.[51] This theory is based upon three kinds of proofs. 1. Chemical. Gley finds in the parathyroids of the rabbit about 25 times more iodine than in the thyroid, in the dog six times more. The presence of iodine in the parathyroid has been confirmed by Mendel[52] and by Pagel.[53] These observations tempted Gley[54] to the hypothesis that the parathyroids prepare the secretion, which is then stored in the thyroids and utilised according to the needs of the economy. If the iodine be not rendered harmless by elaboration in the parathyroid (as when these are extirpated) then we get acute symptoms. If the iodine be subjected to preparation in the parathyroid but is not distributed to the body by way of the thyroid (as when this is extirpated) then we get nutritive troubles from the absence of assimilable iodine in the body. 2. Physiological. Very occasionally complete parathyroidectomy, leaving the thyroid *in situ*, is stated to give rise not to acute symptoms but to slowly progressive changes in bodily nutrition, resembling those produced by simple thyroidectomy (leaving one or more parathyroids behind). It is alleged by Lusena[55] and also by Vassale and Generali[56] that simple parathyroidectomy kills more rapidly than thyro-parathyroidectomy.[57] This is explained by Vassale and Generali by supposing that when the parathyroids are removed the animal is in a toxic condition, which is the more marked when the nutritive changes of the body generally are more pronounced. The tetany then will be more or less serious according as the thyroid is more or less active and therefore logically will be much less marked after ablation of the gland. 3. Histological. According to Edmunds and Vassale and Generali[58] there is a disappearance of the colloid substance in the thyroid after removal of the parathyroids. These arguments are put forward by Gley to support his theory as to a functional relationship between thyroid and parathyroid. This theory is also held by Jeandelize.[59] The presence of iodine may not after all be a matter of supreme significance for the function of either thyroid or parathyroid. Hutchison[60] says: "One would conclude from the whole evidence that the iodine in the thyroid gland, if it plays an essential part in the activity of the latter at all, does so simply in virtue of the special form of combination in which it is present." He points out that Mirva and Stoltzer[61] found that there was no iodine in the thyroids of young infants or in those of dogs fed exclusively on meat, and concluded that the presence of iodine is not essential for the activity of the gland. But there can be no doubt that there are important morphological and physiological relationships between thyroid and parathyroid. Kishi[62] definitely states, as did the older observers, that the parathyroids are not separate and independent organs but are embryonic thyroids. Vincent and Jolly[63] found that parathyroids left behind after thyroidectomy can under certain conditions develop in the direction of thyroid tissue and a functional replacement also takes place.[64] The two structures are derived from very similar sources and even in the fully developed state there is no fundamental difference between their constituent cells. The intervesicular tissue of the thyroid is practically identical with parathyroid, and parathyroid has only to contain colloid vesicles in order to constitute itself thyroid. Dr. Chalmers Watson has recently sent me a slide which shows human "parathyroids" containing some colloid vesicles and this has also, I believe, been previously observed. It is difficult to imagine any other explanation of this occurrence than that thyroid and parathyroid are morphologically and functionally very intimately related to each other.

D. Chemistry of the thyroid.—The question naturally arises, What is the chemical nature of the active principle of the thyroid gland? What is the substance, or what are the substances, manufactured by the thyroid and supplied to the body, the absence of which causes such serious metabolic disturbances in some animals? We may say at once that there is at present no satisfactory answer to the question. Fränkel[65] separated from the gland a crystalline substance having the formula $C_6H_{11}N_3O_5$ which he called *thyreo-antitoxin*. This he thought was the active principle of the organ. In 1895 Baumann[66] discovered the presence of iodine in the thyroid glands and prepared a substance from them containing as much as 9·3 per cent. of iodine. This is an organic compound of iodine. It is prepared by treating thyroids with 10 per cent. sulphuric acid with the aid of heat. On cooling a precipitate comes down which is dissolved in alcohol. From the alcoholic residue the fat is removed with petroleum ether and the substance remaining is dissolved in 10 per cent. caustic soda. The brown solution is precipitated again with sulphuric acid. The product is a brown amorphous substance insoluble in water and soluble with difficulty in alcohol. It is readily soluble in dilute alkalies and is precipitated by acids. It contains no proteid but some phosphorus (0·4–0·5 per cent). [The amount of iodine per gramme of the organ in human adults varies from 0·3 to 0·99.] This substance prepared by Baumann has been put upon the market as thyroiodin by Bayer and Co. of Elberfeld. Baumann and Roos claimed that this was, in fact, the active principle of the thyroid gland; and Hildebrandt[67] finds that thyroiodin alone is able to counteract the effects of thyroidectomy and to keep the animal alive. It represents the physiologically active principle of the thyroid gland. This author states that the excretion of albumin and sugar in the urine which accompanies the severe symptoms induced by thyroidectomy ceases under the administration of thyroiodin. Other salts of iodine are unable to prevent the onset of symptoms. As to the fate of the iodine of the thyroiodin he finds that it is held back in the body with extreme ease, while simple iodine preparations appear almost at once in the urine. He lays special stress on the fact that thyroiodin does not appear in the urine of a dog from whom the thyroid has been removed; hence other organs of the body must have the power of holding back the thyroiodin. On the other hand, the building up of the complicated combination present in thyroiodin from the simple iodine is to be looked upon as a specific function of the thyroid gland.[68]

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functional importance would urge that more parathyroid material is required when administered in this manner than is naturally included in the extracts.

[46] Comptes Rendus du XIV. Congrès des Naturalistes Scandinaves, Copenhagen, 1892, p. 517.

[47] Quoted from Murray, op. cit.

[48] Brit. Med. Jour., Oct. 29th, 1892, p. 940.

[49] Moussu (Comptes Rendus des Séances de la Société de Biologie, 1899, p. 241) found that feeding young animals with thyroid gland causes first emaciation, but later the animal becomes longer, taller, and generally more elegant than the control. *The effects according to Moussu are in fact precisely the antithesis of thyroid insufficiency, cretinism.*

[50] See Gley, *Archives de Physiologie*, 1892, vol. xxiv., p. 146; Comptes Rendus des Séances de la Société de Biologie, 1899, p. 845; Gley et Phisalix, XI. *Congrès* International de Médecine, 1894, in Archives Italiennes de Biologie, 1895, tome xxii., p 41; Moussu, Comptes Réndus *des Séances* de la Société de Biologie, 1893, pp. 280 and 283; Hofmeister, Beiträge zur Klinischen Chirurgie (Bruns.), 1894, *Band* ii., p. 441; Gley et Nicolas, Comptes Rendus des Séances de la Société de Biologie, 1895, p. 216; Kohn, Archiv für *Mikroskopische* Anatomie, 1895–96, Band xliv. and xlviii; Nicolas, Biolog. Anatom., Nancy, 1896; Blumreich and Jacoby, Berliner Klinische Wochenschrift, 1896, p. 325; Verdun, Thèse, Toulouse, 1896–97, p. 31; Ver Eecke, Archives Internationales de Pharmacologie, 1897.

[51] V. Congrès International de Physiologie, Turin, 1901.

[52] American Journal of Physiology, 1900, vol. iii., p. 263.

[53] Cited by Jeandelize, Insuffisance Thyroidienne, &c., Paris, 1903.

[54] Congrès International de Moscou, Août, 1897, Path. vol. ii., p. 192.

[55] Fisio-patologia dell' Apparecchio Tiro-paratiroideo, 1899, p. 108.

[56] Archives Italiennes de Biologie, 1900, tome xxxiii., p. 154.

[57] In dogs this is certainly sometimes the case, but the results are very inconstant.

[58] Archives Italiennes de Biologie, 1896, tome xxv., p. 464.

[59] Op. cit.

[60] Journal of *Physiologie*, 1898–99, vol. xxiii., p. 182.

[61] *Jahrbuch für Kinderheilkunde*, 1897, Band xlv., p. 83.

[62] Virchow's Archiv, 1894, Band clxxvi., S. 260.

[63] *Loc. cit.*

[64] It would be rash in the present state of our knowledge to assert positively that the parathyroids are simply embryonic thyroids, for the morphological and developmental evidence seems rather against this view. See Kohn, Archiv für Mikroskopische Anatomie, 1895–96, Band xliv. and xlviii., where full references will be found.

[65] Wiener Medicinische Blätter, 1895, No. 48; 1896, Nos. 13, 14, und 15.

[66] Zeitschrift für Physiologische Chemie, 1895, *Band* xxi., p. 319; 1896–97, Band xxii., p. 1; Münchener Medicinische Wochenschrift, 1896, Nos. 14 und 20, pp. 309, 476, vol. xliii.; Baumann und Roos, Zeitschrift für Physiologische Chemie, 1896, Band xxi., p. 481; E. Roos, Ibid., 1897, *Band* xxii., p. 18; *also* Roos, Ueber Schilddrüsentherapie und Iodothyrin, 1897.

[67] *Berliner* Klinische Wochenschrift, 1896, Band 33, S. 826.

[68] So also Blumreich and Jacoby (Archiv für *Physiologie*, 1896, 64)

Baumann showed a rise of the iodine present in the thyroids of animals treated with potassium iodide or iodoform. Vassale[69] held that intravenous injection of thyroid extract prevented the ill-effects of thyroidectomy but Thuneberg[70] held the opposite view. Baumann and Roos,[71] Baumann and Goldmann,[72] and Hofmeister[73] agree that thyroiodin is able to supply the functions of the gland after removal, but Gottlieb[74] and Notkin[75] could not confirm this result. Wormser[76] believed that none of the single substances obtained from the thyroid was able to replace its functions and thought it necessary to give them all at the same time if they were to serve as substitute for the normal internal secretion of the gland. Stabel[77] at about the same time came to the conclusion that neither thyroiodin nor thyroid gland substance was able to keep dogs alive after thyroidectomy. So also Pugliese.[78] This observer removed the thyroids from 12 dogs and fed the animals on thyroid "tabloids." All the animals died at 2, 3, 6, 7, 12, 16, 23, 30, and 68 days after the operation, the earlier ones from tetanic symptoms, the later ones from cachexia. Pugliese's observations then stand in opposition to those of Gottlieb and Wormser, but in agreement with those of Stabel, and show that the giving of thyroid preparations is in no way able to keep an animal alive after thyroidectomy.[79]

It is thus evident that Baumann's thesis as to the identity of his thyroiodin with the actual functionally active principle of the gland has not been sustained by all later observations. At any rate, the statements on this point are very conflicting. Any accounts of beneficial results arising from any kind of treatment after thyroidectomy are to be received with extreme caution, since the results of the operation are so inconstant and symptoms frequently diminish or even disappear in animals which are left entirely without any treatment.[80] But there are other objections to Baumann's theory. Iodine is absent from the thyroids of some animals. Baumann himself states[81] that while the thyroid of a dog fed upon Spratt's dog biscuits contains iodine, this element is absent after a meat diet. In the ox, horse, and pig iodine may be absent or may be present in the merest traces[82]; further, Baumann admits that iodine cannot always be found in the human thyroid. One of Baumann's chief arguments in favour of his view lay in the observation that administration of thyroiodin in cases of goitre causes disappearance of the tumour. But this is a known remedial action of iodine[83] *quâ* iodine and proves nothing as to the therapeutic efficiency of the thyroiodin. Good results have been alleged to follow the administration of various inorganic and organic preparations of iodine[84] and certain sea animals and plants which contain iodine have been used as medicaments, and especially in cases of goitre, for hundreds of years before the discovery of iodine.[85] It is possible, as Bunge[86] suggests, that the organic form of iodine may be more readily absorbed and reach the part where its influence is effective. According to Oswald[87] the iodine of the thyroid gland is bound up with a globulin-like body and the compound is called by him *thyreoglobulin*. This, he says, has all the physiological properties of thyroiodin.[88] From it one can isolate the thyroiodin. The thyreoglobulin forms, along with a nucleo-proteid, the colloid substance of the thyroid vesicles. No chemically pure substance has, however, yet been isolated from the thyroid gland and the presence of the iodine is of problematic significance.[89]

E. Influence of the thyroid upon metabolism.—In the treatment of myxœdema and different forms of goitre, a rapid loss of weight is noted on feeding with thyroid gland substance.[90] This is partly due to loss of subcutaneous tissue, partly to loss of water. Thyroid preparations are used to reduce obesity with good results.[91] In order to explain these effects several series of experiments have been performed, with the object of directly studying the influence of the administration of thyroid glands upon metabolism.

The experiments of Ord and White,[92] Mendel,[93] Napier,[94] and Vermehren[95] pointed to a distinct increase of nitrogen in the urine with a concomitant decrease of weight, pointing to increase of proteid metabolism. But in all these experiments, which were of short duration, the total intake and total output were not accurately determined. Similar results were obtained by Dennig,[96] Bleibtreu and Wendelstadt,[97] Bürger,[98] Roos,[99] Zum Busch,[100] Dinkler,[101] and Georgiewsky.[102] The duration of the experiments here was at most 14 days. Other workers have found little or no increase in nitrogen excretion—e.g., Ewald,[103] in a case of myxœdema. Scholz[104] and Richter[105] found a very small increase in the amount of nitrogen excreted. The nitrogen balance remained positive.

The discovery of iodine in the thyroid gland by Baumann[105] and the isolation of thyroiodin as the probable active principle led observers to test the action of this last upon metabolism. Treupel,[107] Grawitz,[108] David,[109] and Dinkler,[110] by observations on the human subject, and Roos[111] who used a small dog, came to the conclusion that thyroiodin influenced metabolism in the same way as the thyroid gland substance itself in that the body weight diminished and the nitrogen secretion increased.

Some experiments of short duration are recorded directed to the estimation of the oxygen taken in and the carbon dioxide given out during thyroid administration. These respiration experiments were carried out after the Zuntz-Geppert method. Magnus-Levy[112] found in a normal

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"Die Wirkung der Schilddrüse besteht wahrscheinlich in der Ueberführung einer giftigen in eine ungiftige Substanz; durchaus möglich ist, dass es sich dabei um eine Umwandlung von Iod in Thyroiodin handelt, das dann weitere Wirkungen im Organismus entfalten kann."

[69] Rivista Sperimentale di Frenatria, 1890, vol. xvi., p. 439.

[70] Archiv für Anatomie und Physiologie, 1892, S. 112 (communicated by Munk).

[71] Münchener Medicinische Wochenschrift, 1896, p. 476.

[72] Ibid., 1893, 43, S. 1153.

[73] Deutsche Medicinische Wochenschrift, 1896, No. 22, p. 354.

[74] Ibid., 1896, pp. 235 and 271.

[75] Wiener Klinische Wochenschrift, 1896, No. 43, S. 990.

[76] Pflüger's Archiv, 1897, 67, S. 605.

[77] Berliner Klinische Wochenschrift, 1897, No. 33, S. 121.

[78] Pflüger's Archiv, 1898, Band lxxii., p. 305.

[79] Coronedi, G., Atti dell' Accademia medico fisiologica fiorentina, 1903, has recently found that administration of haloid fats has a marked effect in preventing the onset of symptoms after thyroidectomy. This, if confirmed, would point to the therapeutic value of organically bound iodine.

[80] See Vincent and Jolly, loc. cit.

[81] Zeitschrift für Physiologische Chemie, 1896, Band xxii., p. 14.

[82] Töpfer: Wiener Klinische Wochenschrift, 1896, No. 8, p. 141.

[83] Coindet: Bibliothèque Universelle de Genève, 1820, vol. xiv., p. 190.

[84] O. Schödorff: Beiträge zur Therapeutischen Verwerthbarkeit des Iodes, 1889. Dissertation, Würzburg.

[85] Bunge, Physiologische und Pathologische Chemie. English Translation, 1902, p. 441; Harnack, Münchener Medicinische Wochenschrift, 1895, No. 9, p. 196.

[86] Loc. cit.

[87] Zeitschrift für Physiologische Chemie, 1899, Band xxvii., S. 14.

[88] Pflüger's Archiv, 1901, Band 83, p. 199.

[89] I can find nowhere any very definite statement as to the percentage of iodine present in the various organs and tissues of the body. Some isolated observations show that small quantities of iodine can be found in the thymus and pituitary. Drechsel found iodine in organic combination in the skeleton of *Gorgonia cavolinii*, and on decomposing obtained a crystalline amido-acid (iodo-gorgonic acid), $C_4H_8NIO_2$. The same observer also records the discovery of iodine in the hair of a patient who had been treated with iodide of potassium. Drechsel confirms the existence of Baumann's thyroiodin and of Fränkel's thyreo-antitoxin, and adds the discovery of still another crystalline basic substance. Hutchison (loc. cit., supra) finds that the physiological activity is always associated with the iodine-containing substance. It seems that the thyroid has the power of storing up any iodine which may be introduced into the body. See Drechsel, Centralblatt für Physiologie, 1896, Band ix., S. 705; Fränkel, Wiener Medicinische Blätter, 1895, Band 48; 1896, Nos. 13–15; Notkin, Wiener Medicinische Wochenschrift, 1895, No. 45, S. 824; Virchow's Archiv, cxliv., supplement, 1896, S. 224; Hutchison, Centralblatt für die Medicinischen Wissenschaften, 1896, S. 209; Brit. Med. Jour., 1896, vol. i., p. 722; 1897, vol. i., p. 194; Journal of Physiology, 1896, vol. xx., p. 474.

[90] See literature quoted by Leichtenstern, Deutsche Medicinische Wochenschrift, 1893, Nos. 49–51, pp. 1297 and 1354.

[91] Leichtenstern und Wendelstadt: Deutsche Medicinische Wochenschrift, 1894, No. 50, pp. 932 and 934.

[92] Brit. Med. Jour., 1893, vol. ii., p. 217.

[93] Deutsche Medicinische Wochenschrift, 1893, p. 25, No. 2.

[94] THE LANCET, Sept. 30th, 1893, p. 805.

[95] Deutsche Medicinische Wochenschrift, 1893, Nos. 11 and 43, SS. 254 and 1037.

[96] Münchener Klinische Wochenschrift, 1895, SS. 389 und 494.

[97] Deutsche Medicinische Wochenschrift, 1895, No. 22, p. 346.

[98] Inaugural Dissertation, Halle, 1895.

[99] Zeitschrift für Physiologische Chemie, Band xxi., S. 19.

[100] Dermatologische Zeitschrift, 1895, Band ii., Heft 5, S. 433.

[101] Münchener Medicinische Wochenschrift, 1895, No. 22, S. 513.

[102] Centralblatt für die Medicinischen Wissenschaften, 1895, No. 27, p. 465.

[103] Berliner Klinische Wochenschrift, 1895, No. 3, S. 55.

[104] Centralblatt für Innere Medicin, 1895, Nos. 43 und 44, S. 1041 und 1069.

[105] Ibid., 1896, Band xxii., p. 1.

[106] Loc. cit.

[107] Münchener Medicinische Wochenschrift, 1896, No. 6, S. 117, and No. 39, S. 884.

[108] Ibid., 1896, No. 14, S. 312.

[109] Zeitschrift für Heilkunde, Band 17, S. 439.

[110] Münchener Medicinische Wochenschrift, 1896, No. 32, S. 513.

[111] Zeitschrift für Physiologische Chemie, 1895, Band xxi., S. 19; Münchener Medicinische Wochenschrift, 1896, No. 47, S. 1157.

[112] Berliner Klinische Wochenschrift, 1895, No. 30, S. 650.

man during the exhibition of thyroid glands a not very distinct increase of the oxygen intake and the carbonic acid output. Later experiments by the same author[113] on a myxœdematous patient gave on the other hand an increase of 80 per cent. in the oxygen intake under the influence of thyroid and 43 per cent. under the influence of iodothyrin.

The experiments of Stüve[114] on a healthy man showed an increase of oxygen intake of 20–23 per cent. and a somewhat smaller increase of carbon dioxide excretion. Thide and Nehring[115] also found an increase of oxygen intake amounting to 20 per cent.; the carbon dioxide output was smaller and irregular. The distinct increase of oxidation processes shown in these experiments proves that the greater part of the loss of weight under the influence of thyroid feeding is caused by loss of fat. The question as to whether the proteid is also used up to any extent remains unanswered, for the experiments are of too short a duration to exclude the possibility of the increased nitrogen excretion being due to an increased excretion of urea and other nitrogen-containing compounds already stored up in the organism.

Schöndorff[116] has performed a very careful series of experiments of long duration upon dogs and has reached the conclusion that metabolic processes are distinctly increased by the administration of thyroid substance. There is at first no influence on proteid metabolism, but an increase in nitrogenous excretion from increased elimination of nitrogen-holding extractives already present in the body. The body fat is first used up. After a certain period, however, the proteid is also attacked. On stopping the thyroid administration the metabolism returns to normal, while renewed administration leads to increased nitrogenous excretion.[117]

F. Physiological effects of intravenous and subcutaneous injections of thyroid extracts in the normal animal.—The extraordinary physiological effects produced by the intravenous injection of extracts of the suprarenal medulla[118] have led to numerous experiments with extracts of very many organs and tissues. No effects at all comparable with those of suprarenal medulla are produced by any of them.[119] All tissues yield to normal saline solution or water some substance or substances which lower blood pressure to a greater or less extent. Nervous tissues are the most powerful in this direction, but muscular and glandular tissues have a similar effect.[120] There is at presence no evidence that in any of these cases the action is a specific one. Extracts of thyroid gland, then, in common with other tissue extracts, cause dilatation of peripheral arterioles and lowering of the general blood pressure.[121] What the pharmacologically active substances may be is not yet determined. Hutchison[122] found that injection of a solution of the colloid matter has no effect on blood pressure. Injection of a solution of the extractives produces a decided fall, the degree of the latter being proportional to the strength of the solution of extractives employed. A solution of the mineral ingredients contained in the solution of extractives produces a slight fall, but not nearly sufficient to account for the lowering of blood pressure which follows injection of the extractives.[123] This observer did not succeed in producing intravascular clotting in rabbits by the injection of the colloid matter.

Subcutaneously injected extracts of the thyroid gland produce no very striking effects; there is a slight stimulating action such as one gets with other organs and tissues. Oliver and Schäfer[124] found no change in the heart-beat as the result of injection of thyroid extract.[125] Baumann's thyroiodin appears to have no effect on the heart.[126] It has been alleged that the resistance to fatigue of the voluntary muscles is increased by the administration of thyroiodin.[127] Cleghorn,[128] who performed his experiments upon the isolated mammalian heart, found that thyroid extracts augment the force and slightly quicken the rate of contraction, but with larger doses the effect was reversed. This observer also obtained similar results with thyroiodin but not with iodine itself.

Extracts of parathyroid injected intravenously produce a fairly marked lowering of the blood pressure. Subcutaneously, so far as I am aware, they have not been tested.

G. Theories as to the function of the thyroids and parathyroids.—The facts detailed above point to the theory that the thyroid gland furnishes in the form of an internal secretion some substance or substances which are in some animals essential for the maintenance of health. The results of extirpation in young animals, the effects of thyroid deficiency in human beings, combined with the beneficial effects of grafting and opotherapy, are strong arguments in favour of this view. A different theory is held by many writers, who are inclined, as also in the case of the suprarenal capsules, to believe that the gland has the function of destroying toxic products of metabolism.[129] It is possible, of course, that both theories may be correct, though the fact that such a small quantity of tissue is sufficient to fulfil the functions of the organ seems to point to the internal secretion as the more probable. Bunge[130] believes that the active substance is probably of the nature of a ferment.

The old theory of Simon[131] that the thyroid regulates the blood-supply to the brain, has found some modern supporters. The remarkably large supply of blood to the organ and the intimate anatomical relations subsisting between its arteries and those which supply the blood to the brain, have induced Stahel[132] and Waldeyer[133] to agree with the view of Simon. But the idea has been most fully developed by Cyon from the experimental side. He concludes that the function of the thyroid consists in the formation of a substance—thyroiodin—whose duty is to maintain in good order the regulating nervous mechanism of the heart.[134]

With regard to the parathyroids, it will be seen from what has been said above that they cannot be looked upon as organs independent of the thyroid. We must, in fact, look upon thyroids and parathyroids as constituting one apparatus.

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[113] Deutsche Medicinische Wochenschrift, 1895, No. 31, S. 491.

[114] Festschrift des Städtischen Krankenhauses in Frankfurt am Main, September, 1896.

[115] Zeitschrift für Klinische Medicin, 1896, Band xxx., S. 41.

[116] Pflüger's Archiv, 1897, Band lxvii., S. 395 et seq.

[117] The effects of thyroid and parathyroid feeding upon metabolism have been recently studied by Easterbrook (THE LANCET, August 27th, 1898, p. 546; Brit. Med. Jour., Sept. 22nd, 1900; Scottish Medical and Surgical Journal, November and December, 1900), in the healthy subject and in patients suffering from mental diseases. This observer finds that there are considerable loss of weight, some pyrexia, and increased perspiration. The blood shows diminution in the hæmoglobin and to a greater extent in the red cells and slight leucocytosis. There were headaches, pains, tinglings, and prickings, as well as tremors of the face, fingers, and limbs. There were also weakness and a feeling of exhaustion. The urinary nitrogen was much increased. The thyroid acted, in fact, as a profound katabolic stimulant. The parathyroids produced no effects. Breisacher (Journal of the American Medical Association, 1903, vol. lix. p. 556) states that all dogs from which the thyroid has been removed die when fed upon meat or meat broth, while 30 per cent. of the animals fed upon milk and eggs remain normal. This had led physicians to treat various diseases of the thyroid, such as myxœdema and Basedow's disease, by prescribing a diet consisting chiefly or entirely of milk, eggs, and vegetables See, however, Ughetti (Riforma Medica, December, 1892, vol. iv., p. 675). According to Lanz (Correspondenzblatt für Schweizer Aerzte, 1895, Jahrgang xxv., p 293) the subcutaneous injection of thyroid juice in normal animals brings about atrophy of the gland (!).

[118] Oliver and Schäfer, Proceedings of the Physiological Society, March, 1894, Journal of Physiology, vol. xvi., p. 1; ibid., March, 1895, Journal of Physiology, vol. xvii., p. 9; Journal of Physiology, vol. xviii., No 3, 1895.

[119] With the exception of the infundibular portion of the pituitary.

[120] Oliver and Schäfer, Journal of Physiology, 1895, vol. xviii.; Osborne and Vincent, ibid., 1900, vol. xxv.; Vincent and Sheen, ibid., 1903, vol. xxix.; Vincent and Cramer, ibid., 1903–04, vol. xxx,

[121] Oliver and Schäfer, loc. cit.; Hutchison, Journal of Physiology, 1898–99, vol xxiii., p. 182.

[122] Loc. cit.

[123] Cf. Osborne and Vincent, Vincent and Sheen, Vincent and Cramer, and Halliburton, loc. cit.; Halliburton, ibid., 1901, vol. xxvi.; Schäfer and Moore, ibid., 1896, vol. xx., p. 1; Cleghorn, American Journal of Physiology, 1899, vol. ii., p. 472; Guinard and Martin, Comptes Rendus des Séances de la Société de Biologie, 1899, p. 161.

[124] Loc. cit. See also Schäfer, Brit. Med. Jour., 1895, vol ii., p. 343.

[125] See, however, Cunningham, Journal of Experimental Medicine, 1898, vol. iii., p. 147.

[126] Vamossy and Vas, Münchener Medicinische Wochenschrift, 1897, No. 25, S. 667; Kobert, Verhandlungen des 14ten Congresses für Innere Medicin, 1896, p. 153; see also Schüster, ibid.

[127] Mossé: Archives de Physiologie, 1898, Band xxx., p. 742.

[128] American Journal of Physiology, 1899, vol. ii, p. 237.

[129] This "Entgiftung" theory has been most definitely formulated by Blum (Münchener Medicinische Wochenschrift, 1898, Nos. 8, 9, and 11, SS. 231, 257, and 335). This author believes that the thyroid takes up the poisonous thyreotoxalbumin from the blood and renders it harmless by the addition of iodine. This view is criticised by Oswald (Pflüger's Archiv, 1900, Band lxxix., S. 450) and Roos (Zeitschrift für Physiologische Chemie, 1899, Band xxv, S. 429).

[130] Lectures, loc. cit.

[131] Philosophical Transactions, 1844.

[132] Deutsche Medicinische Wochenschrift, Leipzig, 1887, S. 227.

[133] Berliner Klinische Wochenschrift, 1887, S. 233.

[134] For details of Cyon's theory see: Centralblatt für Physiologie, 1897, Band xi., SS. 279, 357; Archiv für die Gesammte Physiologie, 1898, Band lxx., S. 126; ibid., 1898, Band lxxiii., SS. 42, 339; ibid., Band lxxiv.; ibid., 1899, Band lxxvii. S. 215. See also Académie des Sciences, 1897, tome 124, p. 1349; ibid., 1897, tome 125, p. 439; Archives de Physiologie, 1898, p. 618; Revue Générale des Sciences, 1901, p 826, &c.

FRICTIONAL ELECTRICITY: A FACTOR IN CAISSON DISEASE.

BY GEORGE W. F. MACNAUGHTON, M.D. EDIN., M.R.C.P. LOND.,
PHYSICIAN TO THE KENSINGTON GENERAL HOSPITAL.

PERHAPS no malady presents such a number of apparently anomalous symptoms and signs as caisson disease, named also by those who work in compressed air "bends." The latter term suggests the all-flexed position which the sufferer typically assumes. Attacks may occur (*a*) in the caisson, rare; (*b*) immediately on quitting, *not so* rare; (*c*) some hours afterwards, usual; or (*d*) not uncommonly for two or three days after the exposure to compression. We will consider for the purposes of description a delayed case. The individual has a depressed, listless appearance, *the eyes are dull and encircled* by dark lines, and the skin of the face is dry, inelastic, and of a yellowish tinge. The facies is distinctive and once noted is readily recognised. Movements are slow and the sufferer complains of general malaise with slight flying pains; he lacks energy and the power of concentration. This stage may pass off, but may not, and without the person re-entering *compressed air*, especially if he be subjected to excessive bodily strain or mental, more acute symptoms arise *preceded* by a short interval of drowsiness and yawning. Following natural promptings, rest is sought; then, when the body becomes warm, *instead of composure* and sleep, aching commences in the back and loins, involuntary upward and forward *movements* of the shoulders occur, the elbow-joints become semi-flexed, with the forearms midway between supination and pronation, the hands clench themselves, while the trunk inclines forwards, the *thighs bend towards the abdomen*, and the legs are also flexed. The muscles of the back are thrown into tonic contraction in groups or singly. The abdominal walls become tense, accompanied by the peculiar sensation that they are describing *semicircles in the air at* some *distance* from the body. Intestinal peristalsis is exaggerated and if defæcation takes place the contents of the *rectum* are expelled so forcibly that the pelvic viscera threaten to follow. Emptying the bladder conveys an unusual sense *of relief*. These motor spasms last from a few seconds to as many minutes, and are accompanied by acute cramping *pains* in the joints and muscles. There is swimming in the head, with constriction at the back of the ears and in the *post-temporal* regions. The thoughts are scattered over wide fields and the ideas are not consecutive. *These mental vagaries* can be controlled by conscious effort. There is no rise of *temperature*; palpitation with high tension pulse is present.

The foregoing are indicative of the irritant or first stage of caisson disease and most cases do not go beyond this, recovery taking place in from two to six or eight days. The graver series of symptoms, monoplegias, *paraplegias*, of a transient or permanent nature, with or without loss of sensation and consciousness, are *significant of the* exhaustion or second stage. These are due to electrical stimulation, while other signs, such as pallor of the skin, hæmorrhagic spots, spitting of blood, rupture of the tympanum, and dyspnœa, are attributable *to the direct influence* of increased atmospheric pressure, although these causes may overlap and coöperate.

The work of a caissonier, which requires prolonged muscular effort, accelerating the return circulation in the *muscles* of the *extremities* and trunk, causes a repletion of the visceral veins and those of the cerebro-spinal axis. Add to this the pressure of one or two extra atmospheres upon the *capillaries* of the body surface and the tension is still further abnormally raised in deeper tissues. Although the cranium can only accommodate a definite amount of *fluid*, the spinal column and its contents are not so constituted; here the thin-walled venules, inclosed by the inelastic perilymphatics, are especially liable to become over-distended through this increased tension; this creates local pressure and interference with the nutriment of the nerve cells, owing to the accumulation of the products of metabolism in the perilymph and in the protoplasmic elements. There is local rise of acidity, which is a stimulant to the discharge of energy by these cells. This energising is probably assimilated by that required to accomplish work.

There is no reason further to believe that the accumulation of carbonic acid and the anthropotoxins (which is guarded against) has any greater effect in the caissons *per se* than it has in any other confined *space* where the air is not compressed, although "bends" have been ascribed to this agency. It is otherwise when the caisson atmosphere, as at present engendered, is charged with electricity, carried by the droplets of water vapour, and when the electric potential in a moderate-sized caisson may be compared in amount with that of a *flash of lightning*. The worker in this atmosphere accumulates upon the body surface electricity which either by directly permeating the tissues reaches, amongst others, the nerve centres, or by acting upon the peripheral nerve filaments or muscle end plates stimulates these centres from the afferent side. Although the amount of electricity be insufficient to produce a conscious effect upon the *exterior*, the nerve cells are thrown into a state of excessive activity, manifesting itself in discharges of a purposeless motor and sensory nature, the "bends" or otherwise the individual becoming polarised in the caisson. When decompression in the air lock takes place, the rapid decomposition of electricity accompanying this and the fall of electric potential cause a similar effect.

But why should the nerves which control the flexors be specially affected? They are not so, but these *form* a greater and more highly organised part of the nervous system than the areas which subserve extension, and the excitant being equal and general the flexion manifestations are thus the greater. The personal equation is an important factor, as in some individuals an exposure to an extra pressure of 12 pounds per square inch for an hour is sufficient to cause an incidence of caisson disease; in others exposure to the compressed air for 40 minutes at 18 pounds *added pressure* has been followed by an attack.

The electricity of the caisson atmosphere is hydro-electric in origin, and the means at present in vogue of compressing and conducting air into the workings is an enlarged continuous performance of the Armstrong-Faraday experiment, with moist air instead of steam. That this is so, without going into the full details of the steam or dynamo compressing engines, the following details show. *Ordinary atmospheric* air is sucked in through valvular openings and is simultaneously compressed and propelled along 15, 20, or 30 feet of plain metal tube into the cooling tank, and it is in this tubing that the electricity is chiefly generated by the friction of the more or less moist air against its walls. The effect of this is to produce so great a rise of temperature, even at 12 pounds added pressure, that it is impossible to place the hand upon the outside for more than the fraction of a second, while a greater compression causes, roughly speaking, a correspondingly high degree of temperature. Reaching these tanks, which are large iron cylinders immersed in cisterns and with cold water flowing over them from above, the air is *cooled* and passed on by metal tubes of varying diameter to the workers. After cooling, the electrical changes taking place in the air are unimportant, but obviously two molecules of air at 15 pounds added pressure or three at 20 pounds pressure occupy the *space* of one molecule of atmospheric air; this, which at ordinary temperature and pressure *is a* feeble conductor to electricity, obtains under pressure a *heightened* conducting power. This power is greater if the air be humid, as after *rain, and* still more so if the humidity be constant, as at sea or riverside working. That this reasoning is not merely theoretical has been demonstrated by a Kelvin galvanometer, for when the same men were tested before going into the working and an hour after being there the deflexions of the mirror were in all cases much increased in the latter. These observations were made upon men some of whom were labouring and upon some who did not perform any manual work. With a gold-leaf electroscope, after a slight primary divergence, the leaves *folded together* and remained stationary, refusing to respond to either positive or negative stimulation. During these observations care was taken to exclude fallacies as far as possible.

As a conclusion *to* the above, in order to hinder or to minimise this generation of electricity in the process of compression, it would appear that the air allowed to enter the intake of the compressor should be absolutely dry. This result might be obtained by its passage through heated tubes arranged in a furnace like those of locomotive engine boilers or one of the *heat economisers* in general use.

For small quantities of air chemical agents, such as calcic chloride or sulphuric acid on pumice stone, might be employed but the expense and difficulty of working with these prevent their application in dealing with large quantities. If impossible to dry the air another means of modifying the generation of frictional electricity would be to line the conducting iron tube, at least as far as the cooling tank, with non-electrical material, such as asbestos packing, earthenware, or highly vulcanised · vulcanite, while the ends of the compressing pistons and their receivers should either be of a non-metallic substance or capped with such. Drying air, however, is the method which commends itself for saving expense, as water vapour expanding into steam offers a marked opposition to compression. One drawback to this drying process is that perfectly dry air is irritating to the lungs, eyes, and other exposed mucous membranes, so that before being distributed to the caissons it would be necessary to let it lick up moisture either by bubbling through or passing over the surface of water in a tank placed near the inlets. Passing through water would be the better means because impurities would be washed out thereby.

With regard to the various views expressed as to the causes of caisson disease, it is difficult to explain an attack occurring in a man after 70 minutes' exposure to 18 pounds added pressure by one that attributes the malady to the escape of bubbles of free nitrogen into the blood, the gas having previously been dissolved therein, and still more so when the incidence is delayed by two and a half days after the exposure. Again, ponies are employed for eight hours daily in pulling wagons in the caissons, and despite their relatively large lungs and cranial air spaces they do not show symptoms attributable to disengagement of nitrogen bubbles, which would naturally be expected were "bends" due to a solution and a subsequent dissolution of this gas in the circulating fluids, but this immunity is explicable by their thick hides being able to resist the effects of compression, while their hairy coverings act as non-conductors of electricity.

Bubbles of air may be demonstrable in the tissues of frogs which have been placed under increased atmospheric pressure, but it is not logical to conclude that the same will apply to man, because in amphibians the skin possesses a respiratory function, while under it lie the sub-epidermal lymph sacs, inflatable potential spaces, forming a direct route for the passage of gas into their blood. In mammals, when the blood is normally aerated, it seems physiologically impossible to bring the respiratory interchanges under the dictum of Dalton's law, and what is claimed with regard to caisson disease as due to the absorption and defervescence of nitrogen gas under compression and subsequent decompression is quite explicable by a rise and rapid fall of electric tension. In attacks of caisson disease where paralysis, coma, and death occur, and where, on post-mortem examination, rents or other gross lesions are present in the substance of the spinal marrow or brain, these are probably caused by rupture or the pressure effects of the over-distended perilymphatics, this over-distension being, as already indicated, attributable to the combination of pressure upon the body surface and to the effect of muscular action upon the circulation. There is great similarity between the symptoms of a non-fatal lightning stroke and an attack of caisson disease, while the return shock of lightning is physically comparable to the changes which follow a too rapid decompression after long exposure in the caisson atmosphere. From this reasoning the use of a medical lock for recompressing the patient is therapeutically rational, while under this category cannabis indica, salicin, salicylates and allies, from their known sedative and analgesic effects, are to be placed.

Thanks are due to Messrs. Walter Scott and Middleton, the contractors of the Euston Extension, *Central London* Railway, for their permission to make observations.

Lower Belgrave-street, S.W.

ANALYSIS OF TINNED MEAT.—The Wiltshire county council, at its meeting held on August 8th, approved of the action of the county medical officer of health in declining to undertake analysis of samples of tinned meats submitted to him by the direction of the Bradford-on-Avon urban council. The county council considers that the protection of the public against tinned meat which is unfit for food is a matter within the jurisdiction of the urban council, and that no action on the part of the county council is called for.

OBSERVATIONS ON THE ACTION OF STRONTIUM SALTS ON THE COAGULABILITY OF THE BLOOD.

BY J. B. NIAS, M.D. OXON., M.R.C.P. LOND.

THE following observations were made in the Pathological Laboratory of St. Mary's Hospital at intervals during the past year by the kind permission of Sir A. E. Wright, and were mainly carried out on a patient under his care whom I was allowed to examine with considerable frequency. They are intended to supplement a paper which appeared in THE LANCET of Oct. 14th last by Sir A. E. Wright and Dr. W. E. Paramore on the Therapeutics of Blood Coagulation, and another which appeared in the following number by Sir A. E. Wright and Dr. G. W. Ross on the Action of Calcium and Magnesium Compounds in the Treatment of Physiological Albuminuria. The observations recorded were for the most part simultaneous in point of time with those of Dr. Paramore, he taking the action of calcium and magnesium and I that of strontium by agreement, so as not to interfere with one another.

The patient on whom I made these observations is a sufferer from hæmophilia, for whom it became desirable to find a drug as a substitute for calcium, as repeated observation by Sir A. E. Wright and myself established that in his case calcium salts were not absorbed when administered by the mouth. This is a detail which seemed to me worth working out in the interest of general therapeutics, as it is probable that there are other drugs with regard to which similar disabilities may exist and have to be overcome. I therefore took considerable pains to establish the fact in the present instance and in this I think I have succeeded, the result of my observations being to prove that the subject in question can absorb with facility, when they are given by the mouth, the soluble salts of strontium and magnesium while refractory to those of calcium.

The condition for which it was required to improve the coagulating power of this man's blood is a periodical oozing of blood from the alveoli of some of his teeth with which it does not appear safe to deal surgically. Generally the time taken by his blood to coagulate in a Wright's capillary tube is two and three-quarter minutes or so at blood heat, the normal for that temperature being two minutes or rather less. At times he suffers from an attack of boils and then the extra amount of nucleo-proteid circulating in the blood has the effect of raising its coagulability to the normal or above, and the hæmorrhage is then suspended, to recur again on convalescence as the coagulating power falls. Sir A. E. Wright has tried to obtain a similar result artificially with such substances as peptone and thymus gland but only with moderate success, and the desideratum therefore seemed to be to furnish the patient with a drug that would have a prompt effect when taken by the mouth whenever a hæmorrhage came on without waiting for the time to visit the hospital. In this direction some advantage has been gained by means of the present research.

After it had been established that the patient could not absorb calcium salts by the mouth the idea occurred to me that a compound of greater molecular weight but otherwise possessed of the same properties would be indicated for trial, as presumably traversing a mucous membrane more easily; and my attention therefore turned in the first instance to strontium, of which the molecular weight is to calcium as 87 to 40; but inasmuch as subsequent observation showed that the patient absorbed equally well the salts of magnesium of which the molecular weight is only 24 I fear that the hypothesis has no foundation. Nevertheless, as the starting point of the present investigation it requires to be mentioned; but I am not able at present to throw any further light on the cause of this curious and, I think, generally unrecognised condition that an individual should be able to absorb with facility two only out of three closely allied metals when by the generality of persons all three are equally easily absorbed. As I have said, such a peculiarity may obtain in other cases, and as a matter of fact another instance of the same kind is recorded in the paper of Wright and Paramore in the person of an individual, under the initials A. E. W., who can absorb the salts of magnesium but not those of calcium.

Among the salts of strontium the bromide, of course, has had considerable vogue in epilepsy and other occasional uses of the metal are recorded in pharmacological literature; but no definite mode of action or the possession of any particular activity by strontium as a base seems as yet to be recognised by medical practitioners. Yet Arthus and Pagès in their classical work on the process of coagulation expressly state that strontium salts will replace those of calcium in restoring its coagulability to oxalated blood.[1] No one seems, as I say, to have ascribed to this palpable activity the medical benefits asserted to have been obtained by the use of strontium. The authors referred to curiously enough deny a similar property to magnesium, a statement which in the face of Wright and Paramore's results can only have a partial application. They say: "Les sels de strontium peuvent comme les sels de calcium produire la coagulation. Les sels de barium et de magnesium sont impuissants à faire coaguler le sang decalcifié." To Wright and Paramore, as far as I can see, belongs the merit of first demonstrating that an important effect of magnesium when absorbed into the system is that of increasing the coagulating power of the blood, the statement of Arthus and Pagès being either a slip of the pen or only applicable to the blood of animals with which they worked. In the case of milk[2] they say, on the other hand, "Les sels de barium et de magnesium par exemple se comportent comme les sels de calcium." By employing one of Wright's methods it is easy to demonstrate that if blood drawn from the finger be mixed with just enough of a solution of ammonium oxalate (in physiological salt solution) to prevent coagulation and then a little of this mixture be aspirated into a capillary tube with a fragment or two of a calcium or magnesium salt, coagulation will set in as rapidly with the magnesium as with the calcium. Strontium shows a similar but decidedly weaker action, often allowing a partial subsidence of red corpuscles before the clot forms, and barium I have not noticed to have any activity in this direction at all.

An important practical application of the strontium salts in medicine was made in the year after the publication of Arthus and Pagès's research but without apparently any attribution of the results obtained to the properties which they had demonstrated. In 1891 Dujardin-Beaumetz and others in Paris gave an exhaustive trial to the action of lactate of strontium in cases of albuminuria, instigated thereto by Laborde who had shown the harmlessness of strontium salts on dogs. In Vol. XIV. of the *Progrès Médical* (1891, pp. 313, 409) will be found abstracts of communications made to the Société de Thérapeutique with regard to this point, from which it appears that lactate of strontium given in doses up to six grammes per diem will produce a great diminution in the amount of albumin excreted in cases of "parenchymatous and desquamative nephritis, but not in the interstitial form." This treatment seems to have been subsequently abandoned and certainly has never come into general use, perhaps from proving only palliative and still more I imagine because no intelligible mode of action was assigned to the drug by the experimenters. On this point they all express themselves very vaguely. Later still, Ried is quoted in THE LANCET of Oct. 27th, 1894, from the *Centralblatt für Gesammte Therapie*, as having found that "lactate of strontium, which is certainly an excellent diuretic, is beneficial in a large proportion of cases of Bright's disease, at all events when no sclerosis of the kidney has taken place," but he too only vaguely conjectures its mode of action Yet, as confirming the more advanced results of Wright and Ross with regard to physiological albuminuria, these bygone empirical observations have their value and ought to stimulate fresh workers to the elucidation of an important problem.

I must now pass on to the record of my own experiments with the lactate of strontium which, beginning in the early part of last year, have been continued up to the present as opportunity offered.

1905. Feb 8th.—The patient at this date was suffering from daily oozing of blood from his gums. After the coagulation time of his blood had been found to be 2 minutes 16 seconds, he took a dose of four grammes of calcium lactate, an amount sufficient to produce a decided effect on most persons; but after 40 minutes, when the coagulation time was estimated again, no change could be detected. On Feb. 10th the coagulation time was two minutes 30 seconds; and therefore no effect remained from the previous dose (compare this with the figures of Wright and Paramore, *loc. cit.*). The strength of oxalate solution required in equal quantity to inhibit coagulation according to Wright's standard was $\frac{1}{1200}$, so that there was no actual deficiency of lime in the blood but the object in view was to force it above the normal. Another line of treatment was adopted for the time being as the patient continued to bleed. On Feb. 17th the patient was found to be no better and his coagulation time had receded to 2 minutes 50 seconds. Four grammes of calcium lactate were again given and again 45 minutes later no improvement could be detected in the coagulating power. On Feb. 24th the coagulation time was still longer—namely, three minutes. At 6 15 P.M. an injection of half a gramme of calcium lactate in salt solution was made into the flank. The coagulation time was then taken every five minutes so as to ascertain the rate of absorption; 30 minutes after the injection it began to shorten, at 7 P.M. reaching 2 minutes 15 seconds, and at 7.15 two minutes precisely. At this figure it remained to the end of the observation, the rapid improvement minute by minute being very interesting to watch. On March 15th the patient was somewhat better as regards the oozing of blood. Two grains only of calcium lactate were injected hypodermically, an intermediate injection of ten grains having apparently got into dense fascia and produced local coagulative effects, ending in great pain and collapse. Most certainly this risk attends all hypodermic injection of coagulative salts. The small quantity given on the present occasion without any injury was sufficient to reduce the coagulation time in the course of one hour from 2 minutes 35 seconds to 2 minutes 5 seconds and thus it became clear that the obstacle to the entry of lime salts into this man's blood resided in his alimentary canal. It was at this point that the idea was conceived of looking for an alternative drug and for the time being Sir A. E. Wright put the patient on thymus gland, which had previously been found useful. By July 21st, having become acquainted with the pharmacological literature of strontium, I obtained a supply of the lactate and began experimenting on myself. On this date, my blood coagulating in 2 minutes 5 seconds, I took one gramme at 4.15 P.M. By 5.15 the time of coagulation was reduced to 1 minute 30 seconds, but by 6.45 it had again increased to 1 minute 50 seconds and at 7 P.M had reached the original figure of 2 minutes 5 seconds, thus showing that the effect of strontium, though typical and decisive, has a certain fugitive character, not so marked in calcium and magnesium. Possibly this is due to the fact that strontium is not a normal ingredient of the blood; but this fugitiveness is not always to be noted, as will be seen hereafter, nor can I exactly specify the conditions under which it appears. On July 24th I took a smaller dose—two thirds of a gramme of strontium lactate. At 6 P.M. my coagulation time was 1 minute 45 seconds, by 6.40 this had been reduced to 1 minute 10 seconds, and an hour later, at 7.40, had begun to recede again, being 1 minute 20 seconds. The observation was here stopped for dinner and I may say that observations of this detailed character have to be limited to the time between meals or changes of occupation if they are to have any value. On August 14th my time was rather longer than usual—namely, 2 minutes 20 seconds. At 6 P.M. half a gramme only of the lactate was taken and at 6.50 the time had become reduced to 1 minute 45 seconds, extending again by 7.20 P.M. to 2 minutes exactly. For practical purposes it was deduced from these experiments that a proper dose would be from one to two grammes. On August 23rd the first opportunity occurred for testing Sir A. E. Wright's patient with the lactate of strontium. He had now for some months been taking 35 grains of thymus extract daily and was consequently in much better condition, though not altogether exempt from hæmorrhage. At 4.30 P.M., when his coagulation time had been found to be 2 minutes 35 seconds, he received one gramme of strontium lactate and at 5.30 the coagulation time had become reduced to 1 minute 55 seconds, at which it remained to the end of the observation. An improvement of 30 per cent. in coagulating power at the first trial was a welcome contrast to the experiences with calcium. A considerable interval here elapsed owing to my holidays. On Nov. 8th the patient's blood was found to coagulate in 2 minutes 50 seconds and at 4 10 P.M. he had a dose of two grammes of the lactate. By 4.50 the time was reduced to 2 minutes 5 seconds and at 5.20 to 1 minute 50 seconds, when the observation terminated. Again an improvement of 30 per cent. recorded. Nov. 15th.—The joint paper of Wright and Paramore having now appeared and their results therefore available, I thought I would try a comparative test with magnesium, choosing the lactate as preferable for a rapid effect in the place of the more insoluble carbonate. On this occasion the patient's blood coagulated in three minutes exactly. At 4.15 two grammes of the lactate of magnesium were given and by 4.50 the coagulation time was reduced to 2 minutes 25 seconds, and further by 5.20 to 2 minutes 10 seconds. It appeared then that magnesium acted as well on this patient as strontium, producing also an improvement of nearly 30 per cent. Dec. 13th.—As the result of occasional doses of magnesium carbonate prescribed by Sir A. E. Wright the patient had improved perceptibly. An oxalate test showed a strength of $\frac{1}{1050}$ as required to inhibit coagulation. The lactate of strontium was again tried on this occasion, a dose of one gramme being given at 3.50 P.M.; the coagulation time was then 2 minutes 50 seconds. By 5.20 the time had been reduced to 2 minutes and at 6 P.M. to 1 minute only. This excellent result of an improvement of 60 per cent. for the time being in the coagulating power was apparently due to the longer continuance of the present observation and might possibly have been before recorded if the times available had allowed. No fugitiveness in the effect was to be noted on this occasion; I cannot say why. On Dec. 20th and Jan. 3rd and 5th of the present year fresh trials were made to reaffirm the inability of this patient to assimilate calcium; the results were exactly as before, at the most on the third occasion an improvement of 15 seconds being noted after the lapse of three hours, after a dose of two grammes of calcium lactate. The treatment of hæmophilia not being the special object of this paper I need not detail the further observations made on this man except to say that he has of late been supplied with powders of strontium or magnesium lactate for self-administration in emergencies and as a result he has been able to report to me on more than one occasion that hæmorrhages have ceased within 12 hours instead of going on for days. Perfect success, however, is not always obtained, as might be expected with such a difficult pathological condition to contend with, but it may be affirmed that something has been accomplished for his comfort so far.

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[1] Archives de Physiologie Normale et Pathologique, 1890, p. 742.

[2] Ibid, p. 339.

Conclusion.—From these experiments I think it is clearly established that the lactates of both strontium and magnesium in doses of from one to two grammes are serviceable substitutes for the salts of calcium when the latter are not absorbed from the alimentary canal, thus enabling us to dispense with the dangerous practice of hypodermic injection which my experience does not show to have any advantage in speediness of action.

These observations also, I think, enforce the old lesson of the complexity of vital action with which the physician has to contend and show how the recognition of minute differences and the mastery of minute details must not be avoided if one wishes to triumph in a difficult art like medicine. I hope to see someone else with the requisite opportunities taking up the question of albuminuria and its treatment with these coagulative salts, when probably other differences in their action will be demonstrated.

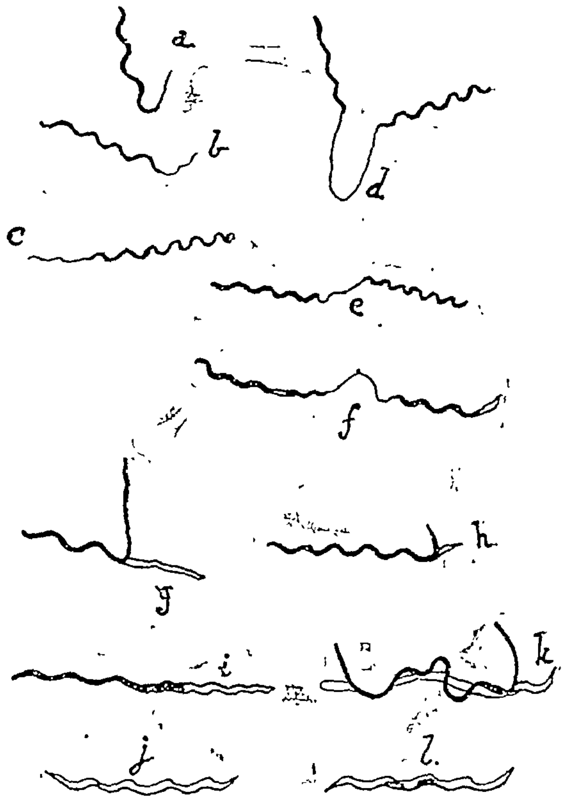
Gloucester-road, S.W.

A NOTE ON THE STRUCTURE OF SPIROCHÆTA DUTTONI.

By J. W. W. STEPHENS, M.D., D.P.H. CANTAB.,
LECTURER ON TROPICAL MEDICINE, UNIVERSITY OF LIVERPOOL.

WHILE engaged in investigating some of the methods in use for staining bacterial flagella I was led to apply these methods to the staining of the spirochæta of African tick fever. It will be unnecessary here to review the results obtained with other spirochætæ by other observers, as these questions will be fully dealt with shortly by Dr. J. L. Todd and Dr. A. Breinl, to whom I am much indebted for a plentiful supply of material. The difficulties of applying the silver method of staining flagella described by me in the Thompson-Yates Laboratory Reports for 1903, Vol. V., Part I., to spirochætæ contained in an albuminous fluid like blood plasma are so considerable that I abandoned this method after many unsuccessful attempts to wash the spirochætæ by centrifugalisation sufficiently clean to get good preparations. I, however, succeeded by this method in demonstrating in some specimens a terminal flagellum.

Another method, as yet unpublished but similar in principle to Löffler's method, has given me beautiful results with different bacterial flagella. It is the results obtained with this method that I think are of interest. Here again the spirochætæ were centrifugalised and washed in normal salt solution three or four times. Films were then made of the sediment and after mordanting stained with gentian violet. The forms observed under an ordinary oil-immersion objective were the following: 1. Forms showing a terminal flagellum (*a*, *b*, *c*). So far I have not found a flagellum at each end or any indication of peritrichous flagella. 2. "Linked" forms (*d*, *e*, *f*)—i.e., two ordinary spirochætæ joined by a thin intervening portion resembling the flagellum in appearance but of very variable length. 3. "Eviscerated" forms (*g*, *h*, *i*, *k*), probably due to mechanical and chemical action. Many of these forms were seen. They presented two portions: (1) the partly or even completely eviscerated "core" often of a peculiar rigid appearance staining deeply and uniformly; and (2) the faintly staining remaining "sheath" still retaining the undulations of the normal spirochæta. Not uncommonly faintly staining "sheaths" (*j*, *l*) were found devoid of any core but I have not observed an empty sheath with a flagellum attached to it. These terms I use in a purely descriptive sense; their interpretation I must leave to those engaged in the special study of spirochætæ. It seems to me, however, that these forms, especially the "eviscerated" ones, have considerable bearing on the question of the bacterial or protozoan nature of spirochætæ.



Diagrammatic representations of various forms of spirochæta Duttoni: *a*, *b*, *c*, Spirochætæ showing a terminal flagellum. *d*, *e*, *f*, "Linked" forms. *g*, *h*, *i*, *k*, "Eviscerated" forms. *j*, *l*, Empty "sheaths."

Liverpool.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Mr. F. H. M. Parker, M.A. Oxon., barrister-at-law, has been appointed secretary to University College Hospital Medical School.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF MITRAL STENOSIS; DEATH FROM EMBOLISM OF SIX MAIN ARTERIES.

BY RICHARD S. ROPER, M.R.C.S. ENG., L.R.C.P. LOND.

A MAN, aged 27 years, was admitted to the St. Marylebone Infirmary on Oct. 26th, 1905, suffering from cardiac disease and bronchitis. He had had rheumatic fever twice. On admission he complained of cough but otherwise seemed in fair health. On examination there were a few râles and rhonchi scattered over both lungs. The cardiac area of dulness was increased and on auscultation well-marked systolic and mid-diastolic bruits were heard at the apex. No other bruits were heard. The pulse was regular and of good volume. The liver was not enlarged, neither was there any ascites, œdema, or other sign of failing compensation. The patient was kept in bed for a month and as at the end of that time all physical signs in the lungs had subsided he was allowed up and by Dec. 7th was up all day.

On Dec. 7th, at 4.45 P.M., while in the day-room the patient suddenly became very ill and was at once removed to bed. When examined he was blue, pulseless, cold, and clammy, and was struggling vigorously, and at the same time complained of great pain in his legs. The heart was beating regularly and at normal rate but no bruits could be heard. At 7 P.M. the general appearance of the patient was much the same and the condition of collapse was very little improved. He still complained of great pain in the knees and abdomen. Neither tibial pulse could be felt nor was there any pulse at the left wrist. The left femoral artery could be felt pulsating just below Poupart's ligament. Both lower limbs and the left arm were paralysed. There was anæsthesia of the legs as far up as Poupart's ligament. The abdomen was slightly distended. At no time was he unconscious and his mental condition was quite clear. A sixth of a grain of morphine acetate was given and at 10 P.M. he had somewhat recovered and had less pain. At this time his face was a natural colour, the collapse had passed off, and he was warm. He was still unable to move his left arm but motor power and sensation had returned to the lower limbs. The right radial was the only artery felt pulsating in the limbs. The abdomen now was very distended and a copious blood-stained motion was passed. Several ounces of blood were passed per rectum until death, which took place at 4 A.M. on Dec. 8th.

A post-mortem examination was made seven hours after death. There was hypertrophy of the left auricle and ventricle with marked stenosis of the mitral orifice. The latter just admitted the tip of one finger. Recent vegetations were present on the inner wall of the left auricle of the size of a pea. No ante-mortem clot was to be seen. The small intestines were distended and anæmic. Embolism of the following arteries was found: both common femorals, with ante-mortem clot extending as far as the popliteal artery; the right internal iliac at its bifurcation; the right renal at its division; the superior mesenteric just below the middle colic branch; and the left brachial at the origin of the superior profunda. No other pathological condition was found in any organ.

I am indebted to Mr. J. R. Lunn, medical superintendent, for permission to publish this case.

Notting Hill, W.

A CASE OF LEUKÆMIA SUCCESSFULLY TREATED WITH ARSENIC.

BY FRANK LINDSAY DICKSON, M.B., CH.B. GLASG.

THE patient in the following case was a man, aged 24 years, who came to me on May 30th complaining of pain in the back, slight headache, and general debility. His temperature was 99·6° F. and I gave him a saline mixture with orders to rest for a few days. He returned three days later and stated that the pain in the back was better but that he felt very weak. His temperature was normal and I treated the case as debility following influenza, prescribing compound syrup of the hypophosphites and cod-liver oil. At the same time I noticed a slight swelling of one of the deep cervical glands. This was hard, freely moveable, and quite painless. The patient then took to his bed, there being great prostration. The glandular enlargement increased until the swelling was of about the size of a hen's egg. His temperature remained normal and there was no improvement in his general condition.

On the evening of June 6th I found that the inguinal, right axillary, and post-cervical glands were slightly enlarged; the splenic area of dulness was slightly increased and pain was induced on pressure over that organ. I was inclined to diagnose the case as one of pseudo-leukæmia, true leukæmia to be left for consideration after examination of the blood, for which purpose I sent him to the Queen's Hospital, Birmingham. The patient was seen by Dr. J. G. Emanuel, who afterwards told me that he was inclined to regard the case as one of mild enteric fever. A blood film was, however, taken and on the next morning I received from Dr. Emanuel a letter from which the following is an extract: "There is a great excess of leucocytes and lymphocytes, the latter predominating. I regard it as being one of those rare cases of acute or subacute lymphatic leukæmia. I expect it will terminate fatally in a few weeks." I examined the blood myself on the following day and found that the white cells were almost as numerous as the red ones. I then commenced to administer liquor arsenicalis, giving five minims three times a day, and the result seemed almost miraculous. After three days the patient "felt much better in himself," the glandular swellings were noticeably less, and I found that there was marked improvement in the condition of the blood. The dose of liquor arsenicalis was increased rapidly until 15 minims were being taken thrice daily, the improvement continuing and no toxic symptoms being produced by the drug. The patient had one attack of epistaxis which weakened him a little; he had, however, been subject to these attacks from childhood. About a fortnight later the glands were practically normal and the blood was, in my opinion, in a like condition. Dr. Emanuel came to see him after I had written my opinion on the subject and took half a dozen films of the blood. His next letter said that "the blood is practically normal."

The dose of arsenic was gradually diminished and on July 6th the patient went to the seaside for a fortnight, taking with him sufficient medicine to last him till his return. I gave him iron in addition to the arsenic as the red blood corpuscles needed a little recruiting. On his return he told me that he felt as well as ever he had done in his life. Two days later he returned to his work as a carpenter and he has remained perfectly well ever since. The only predisposing cause was that some time before the commencement of the illness he had been working about some water-closets of which the drains were obstructed and the odours not ambrosial.

Hay Mills, Birmingham.

A CASE OF RUPTURE OF THE GRAVID FALLOPIAN TUBE.

BY N. J. F. VAZIFDAR.

THE patient was an ayah, aged 25 years, who was admitted into the Sir Jamsetjee Jeejeebhoy Hospital in Bombay on Dec. 9th, 1905, for acute intestinal obstruction. The history of her illness was that on Dec. 6th, whilst micturating, she was suddenly seized with an acute pain in the abdomen after which she vomited and fainted. The pain and vomiting increased and on the 8th the vomited matter became fæcal. There was absolute constipation in addition to which no flatus had been passed since the 6th. On admission she was in a collapsed condition. Her temperature was 97° F., her pulse was 146 per minute and very weak, and her respirations were 48 per minute; the abdomen was much distended all over, tense and hard on palpation, and tympanitic on percussion. There was almost continuous fæcal vomiting. The case being diagnosed as one of acute intestinal obstruction, probably due to a volvulus, a median laparotomy was immediately performed by Lieutenant-Colonel W. H. Quicke, I.M.S., the senior surgeon of the hospital. The abdominal cavity was then found to be full of dark blood and blood clots, and further examination revealed a rupture of the right Fallopian tube at its isthmus. The tube was tightly ligatured at its uterine junction, the broad ligament was also ligatured *en masse*, the whole tube with the ovary was removed, and the abdomen was sutured after being flushed with hot normal saline solution. An intravenous injection of 24 ounces of normal saline solution had to be given. The ruptured fœtal membranes with slender chorionic villi were found among the blood clots. The patient was in a very precarious state and had to be supported on stimulating injections for three or four days. She then gradually improved and was discharged recovered on Jan. 29th, 1906.

A very remarkable fact in the case was that the patient on admission showed all the signs and symptoms of acute intestinal obstruction, including extremely severe fæcal vomiting, and the history of her illness as given at the hospital did not contain any clue to its real nature. Owing to the enormous distension of the whole of the abdomen no localised swelling could be distinguished. There was even a history of the patient having a normal menstrual period a week before the illness.

This is the third case of rupture of the gravid Fallopian tube at the end of the fifth week which has been admitted into this hospital during the last two years. All these patients had symptoms and signs pointing most distinctly to intestinal obstruction; and they all had constipation of three or four days' duration, fæcal vomiting, and great distension of the abdomen.

I have to thank Lieutenant-Colonel Quicke for permitting me to report the case.

The Sir Jamsetjee Jeejeebhoy Hospital, Bombay.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

KIDDERMINSTER INFIRMARY.

TWO UNIQUE CONGENITAL DEFORMITIES IN THE ABDOMEN OF THE SAME PATIENT.

(Under the care of Mr. J. LIONEL STRETTON.)

A BOY, aged five years, was admitted to the Kidderminster Infirmary on July 14th last. He suffered from pain in the abdomen. He vomited some curdled milk soon after admission but after this he retained the milk given to him. His mother stated that he had suffered from pains in the abdomen and occasional vomiting since birth. His bowels were always very constipated. On examination it was noted that he was very thin and emaciated. The abdomen was retracted. On inspection a lump swelled up and became visible in the epigastric region about an inch above, and to the right of, the umbilicus. Vermicular action of the intestine was seen from the right iliac region up to this lump. On palpation the lump could be easily felt; it was about two inches in diameter and of an ovoid shape and could be grasped between the thumb and fingers without causing pain. In the left iliac region some small indurated masses were felt resembling enlarged glands. Per rectum the finger passed in easily. At a point about three inches from the anus a sharp, sickle-like band was felt, apparently attached to the anterior wall of the pelvis and impinging on the rectum, and though not interfering with its calibre it would probably do so if the bowel was loaded. Examination of the chest discovered nothing abnormal. The pulse and temperature were normal. An enema was administered and brought away a quantity of small, scybalous masses. Examination of the abdomen after this failed to discover the small indurated masses in the left iliac region that had been mistaken for glands. The patient was given small quantities of milk which were retained. The most probable diagnosis appeared to be tuberculous peritonitis with partial occlusion of the transverse colon.

On July 17th, under ether, an incision about two inches long was made in the left linea semilunaris from the level of the umbilicus downwards. No evidence of tubercle was discovered. The band in the pelvis appeared to be a fold of peritoneum running along the whole of the anterior surface of the pelvis and projecting backwards about one inch. The lump in the epigastric region was felt to involve the pylorus. A second incision was made running upwards from the umbilicus in the middle line about two inches in length. The lump was then lifted out of the abdomen. It was found to consist of an enlargement of the cardiac end of the stomach close to the pylorus. The transverse colon was closely adherent, which caused a loop and would interfere with the free passage of its contents. The lump appeared to be connected with the walls of the stomach; it was ovoid in shape, about two inches in diameter, and tense and elastic. As the nature of it was uncertain it was decided to explore it. After separating the colon clamps were applied on either side and a longitudinal incision was made over it on its anterior aspect. About three drachms of clear serous fluid immediately escaped and the finger entered a cyst which had no communication with the stomach or intestine. The cyst wall was found to be attached to the muscular wall of the stomach. It was situated between this and the mucous membrane which it had pushed downwards. It was very intimately attached posteriorly, above, and in front. How much it had occluded the pylorus it was impossible to say as the fluid had escaped before the nature of the enlargement was discovered. An endeavour was made to dissect off the wall but it was so adherent that it was impossible to avoid penetrating the walls of the stomach and it was necessary to excise this portion. The ends were united with silk sutures and the abdominal wounds were closed. The patient suffered from considerable shock, after which he improved for a day or two, but died early on the 21st from exhaustion.

The specimen was sent to the Clinical Research Association and it reports as follows: "From the naked-eye appearance and microscopic structure of this cyst wall we can form no definite opinion as to its origin. It is composed of closely felted fibrous tissue which is smooth on one surface but entirely devoid of any epithelial covering. Externally there is loose cellular tissue and interlacing bundles of unstriped muscle. From the youth of the patient it is probable that the cyst is of congenital origin."

Necropsy.—Post-mortem examination showed some recent peritonitis. The anastomosis was quite secure. The crescentic band felt on the anterior wall of the pelvis consisted of a peritoneal fold projecting backwards from the posterior surface of the bladder and ending in a horn running up on each side wall of the pelvis just posterior to the position of the ureters. It stood out one and a quarter inches at the centre, gradually diminishing as it approached the sides. There was a second less marked peritoneal fold along the upper surface of the bladder.

Remarks by MR. STRETTON.—I can find no record of either of these conditions. Of the cyst I can offer no further explanation than that given by the Clinical Research Association. A congenital cyst in this situation must be exceedingly rare, if, indeed, it has ever before been found. The fold of peritoneum was no doubt an unusual development of the sacro-genital fold so well depicted in Professor D. J. Cunningham's "Text-book of Anatomy" (Figs. 822 and 823). Although always present. I have never before been able to feel it per rectum and so far have not heard of it being felt. In this opinion I am strengthened by a letter from Dr. D. Waterston of the University of Edinburgh who, in answer to a question from my house surgeon, Mr. W. A Wilson-Smith, says: "I have often wondered if it could not be felt per rectum but yours is the first instance to my knowledge." Both the conditions, therefore, appear to be worth reporting and it is a curious fact that they should have been found in the same abdomen.

DONATIONS AND BEQUESTS.—The late Mrs. H. Finnie has bequeathed £2000 to the Clevedon (Somerset) Convalescent Home and her executors have allotted the sum of £1000 to the Royal Sea Bathing Hospital, Margate, for the endowment of the "Hannah Finnie memorial bed."

Reviews and Notices of Books.

The Scientific Temper in Religion, and Other Addresses. By the Rev. P. N. WAGGETT, M.A., of the Society of St John the Evangelist. London: Longmans, Green, and Co. 1905. Pp. xii.-286. Price 4s 6*d*. net.

THE charming series of addresses delivered at various times in the form of sermons by the Rev. P. N. Waggett and now published as a book of essays under the general title of the "Scientific Temper in Religion" should be read by all thoughtful and philosophically minded men, and will especially appeal to members of the medical profession. The essays form no *apologia* to the Christian for his religion; they contain no polemical criticism of the tenets of science, and offer no presentation of the supposed antagonism between science and religion; they constitute rather a thoughtful and suggestive plea for mutual understanding, respect, and assistance on the part of these two great schools of thought and action.

In the introductory chapter Father Waggett points out that in what he terms "the upper regions of educated life" there is at the present time a pause in the controversy, making a good opportunity for mutual adjustment of differences. He terms this pause happily a "truce by estrangement" and he suggests that the cause of the cessation of hostilities is threefold. Firstly we have the readjustment of thought on the part of orthodoxy, whereby many religious statements are differently expressed and explained; secondly, we have the vigorous condition of natural science, its broader field of work, and the greater caution incidental to the increased broadness of view; and thirdly, the fact that the Church has been fully occupied with its own problems, notably in regard to the results of critical research and the Ritschlian theology. This last circumstance is well put by Father Waggett in the following sentence: "Men are much too hard at work in adjusting our new ideas of what religion is with the old words which already enshrine them to be keenly interested about dangers supposed to arise from friction between the Bible record and the discoveries of natural science." The result of this preoccupation of science and religion each with its own problems has been that each has advanced on its own lines ignoring the other in a spirit of despair of reaching agreement or coincidence. What is needed is a better mutual understanding, or again to quote from the volume under notice: "If in science we need and welcome a spirit and a method of patience, on the side of religion we need and ought to show a more truly scientific temper." Father Waggett points out that science and religion do not progress along coincident or even parallel lines but rather in converging directions; it is therefore not to be expected that they should entirely agree or even be able to express their tenets without discrepancies, but since both are advancing each should regard the work of the other with reverence, patience, tolerance, and moderation.

The second address is that which gives its title to the book, and in it the scientific temper in religion is defined, not as an attempt either to conciliate the statements of religion and science or to establish religion as a department of natural history, but as a desire to adopt the wide outlook, the adventurous spirit, and the positive temper of the highest scientific workers. Father Waggett shows the breadth of his views, and illustrates his contentions admirably, in the analysis he gives of the methods of science and in the application of these methods to the problems of religious experience. He refers to the adventurous spirit of science in speculative and theoretical fields and to the solid advance which the experimental testing of theory and hypothesis has led to; in illustration he refers to the great conceptions of natural selection and of the Mendelian theory of heredity, both of which have led to the discovery of new facts. He next refers to the adventure of science in actual discovery, the search with an open mind for new facts; and thirdly, to the excellent discipline of science, in which even in learning the simplest and most fundamental facts the actual personal verification of each fact observed by the student is of vital importance. The third essay follows naturally upon the second and is entitled "The Distribution of Problems." Here are classified and outlined various classes of modern difficulties. Four classes of such difficulties are distinguished: first, the contentions of materialism; secondly, there is the attack on the spiritual nature of man; thirdly, the attack on natural religion or theism—i.e., the general belief in God; and fourthly, the objections directed against Christian dogma or Bible religion. Father Waggett maintains that the doctrine of evolution does not in any sense come into conflict or antagonism with theism, and further states that the supposed antagonism between the theory of natural selection and the idea of God has been in no small measure due to the narrow conception of the latter idea in men's minds. In the next essay, on the Effect of Evolutionary Doctrine, Father Waggett quotes Professor Huxley in support of his contention that theism as such does not come into direct collision at all with the doctrine of evolution stated generally. He goes on to prove that theology is really assisted in its deeper studies by the conception of evolution—to use his words, "By the thought that what we see is not a perfect thing which shows its destined end but a growing thing whose nature is to be guessed by the indications of its purpose and not by the present and evident successes of its labour."

The fifth chapter is devoted to Agnosticism and Determinism, and here Father Waggett deals with two doubts which may arise in many minds—firstly, the suspicion that science alone is real knowledge and that other things which pass under that name are mere fancies, which he regards as agnosticism; and, secondly, that in the realm of science there is an inexorable binding by law, a denial of the idea of freedom which may be referred to as determinism. Father Waggett, with great ability, contends that freedom is not denied by the universality of law, that, indeed, freedom grows when law becomes clear and definite, and only in this way. In the sixth chapter the relation between Natural Selection and Theism is further developed. Father Waggett, while for the purposes of argument allowing the widest latitude to the theory of natural selection, points out that it does not account either for "the origin of life or for the origin of its character and behaviour." Further, he maintains that it does not account for variation and that therefore it does not come into conflict with that reverence for supreme creative power which forms one of the supports of religious conviction. The same idea is developed in the next chapter, under the heading of the Bible and Evolution, and after maintaining that the teaching of Genesis should be compared not with modern biology but with other ancient cosmogonies, Father Waggett claims that the Bible foreshadows some of the most striking and surest elements of modern thought, that it excludes the two extremes of dualism and scepticism, and that it affords a statement of truth in a form credible throughout the ages.

The eighth chapter is devoted to an analysis of the effect of biological doctrines on certain views of human nature. The conclusions of anthropological, physiological, psychological, and embryological studies are critically considered, while the idea of greater freedom in the realm where law is most evolved suggested in a previous essay is further developed. The last two chapters—on Experiment, Dogma, and the Aids which Science gives to the Religious Mind—are practically an application of the previously developed ideas to the use of religion and within the space of a review they cannot be outlined, especially as the author's matter does not lend itself to condensation. We have enjoyed the perusal of Father Waggett's book and can commend it to those of our readers who desire a thoughtful exposition of modern scientific ideas as applied to the problems of religious thought.

Atmokausis und Zestokausis: die Behandlung mit hochgespanntem Wasserdampf in der Gynäkologie. (*Atmokausis and Zestokausis: the Therapeutic Use of Superheated Steam in Gynæcology.*) By Dr. LUDWIG PINCUS. Second revised edition. With 33 figures and tables. Wiesbaden: J. F. Bergmann. 1906. Pp. 371. Price 6 marks.

THE application of steam to the interior of the uterus as a means of arresting hæmorrhage, although practised by but few persons in this country, is yet in Germany, at any rate, a well-recognised therapeutic measure. This is largely owing to the work and zeal of Dr. Pincus of Danzig, who has done more than anyone else to popularise this mode of treatment. In the second edition of his book the whole subject is very fully dealt with and after reading the evidence afforded by it, it will be impossible for anyone to deny that in certain well-defined conditions atmokausis and zestokausis are perfectly legitimate and useful methods of treatment.

The first part of the work is taken up with an account of the gradual development of the apparatus employed and of the experimental investigations which have been carried out as to the effects produced by the application of superheated steam to the interior of the uterus. The second part deals with the manner in which the application of the steam should be made to the uterus and with the indications for, and the contra-indications to, its use. In his summary of the history of the method Dr. Pincus points out that the use of boiling water in the treatment of fistulæ and sinuses was well known to Rust in the year 1813, but that K. H. Dzondi of Halle was the first to devise a satisfactory boiler for the ready production of steam for this and similar purposes. The disinfectant and hæmostatic properties of this agent were well known to the surgeons of that date, but its systematic employment as a hæmostatic was not really begun until the year 1886, when it was placed upon a definite footing in surgery by Snegirew of Moscow. The rest of this chapter deals in a most interesting manner with the way in which the various difficulties and dangers were overcome by the energy and determination of the author of this work, often, indeed, in the face of much opposition and scepticism on the part of the opponents of this method of treatment.

In order that good results may be obtained with atmokausis the rules laid down for its use by the author cannot be followed too carefully. Sufficient dilatation of the cervical canal must be produced by the use of dilators, or better by the use of a laminaria tent. Before the introduction of the steam into the uterus the cavity and the mucous membrane must be cleansed carefully from all blood and mucus, preferably with a 1 per cent. solution of peroxide of hydrogen. In all cases great care must be taken to determine the exact length of the uterus and of the cervical canal, and, further, that the uterine appendages and cellular tissues are in a perfectly healthy condition. In the majority of cases Dr. Pincus considers anæsthesia unnecessary, laying stress on the fact that if the patient complains of pain during the operation the introduction of the steam should at once be stopped. This mode of treatment can be practised on out-patients and on its first introduction this was considered to be one of its most important advantages, but it is on the whole safer to treat the patients on the same lines as if they had had the uterus curetted, and to keep them in bed as a precautionary measure for the same length of time.

In cases where there is any doubt as to the condition of the uterine appendages, or where these are painful on examination, the patient should be subjected to a course of suitable treatment, and steaming the uterus should only be carried out with the utmost care. One of the chief dangers of the use of so powerful an agent as superheated steam in the interior of the uterus is the fear of causing obliteration of the cervical canal, with a resulting collection of the menstrual blood in the interior of the uterus. This must be carefully guarded against, first of all by observing the rules never to introduce the catheter with the steam turned on, and secondly, never to withdraw it so far as to leave the tissues of the cervix unprotected by the special sheath of non-conducting material intended to shield them from the action of the steam. Great care must be taken also to see that neither the inlet nor the outlet tubes become blocked by blood clot. The best results are obtained by using steam at a temperature of from 110° to 115° C. for as short a time as possible—viz., from five up to 40 seconds. If the steaming is repeated this should not be done until from three to four weeks have elapsed or until after the occurrence of the next menstrual period.

The indications for the use of steam may be divided into absolute and relative. Included amongst the former are such conditions as certain forms of pre-climacteric hæmorrhage; all cases of hæmophilia with hæmorrhage from the uterus; certain forms of hæmorrhage in cases of fibro-myomata of the uterus; certain forms of endometritis hæmorrhagica and endometritis hyperplastica in young women and atonic hæmorrhages, especially after abortions or in the later stages of the puerperium; and for the sterilisation of women under certain conditions. As relative indications Dr. Pincus enumerates cases of subinvolution and cases such as membranous dysmenorrhœa in which it may be used as an accessory to the curette. Atmokausis is to be preferred to the curette when the latter instrument has already been employed without success, and especially in patients suffering from excessive anæmia in whom it is important to avoid any further loss of blood. Zestokausis, which is in reality merely a form of actual cautery, is indicated when a cauterisation of some localised portion of the endometrium is necessary, and in the treatment of some cases of so-called endometritis dysmenorrhœica. Atmokausis is undoubtedly a most valuable means of arresting hæmorrhage in certain well-defined cases. When used intelligently and with proper precautions it gives good results in such cases, and it often succeeds where curettage alone fails. Whether it produces a more permanent effect than the somewhat old-fashioned plan of applying pure acids, such as carbolic or nitric acids, to the uterus, after using the curette, is still doubtful; such applications often fail, however, in producing the desired effect, and Dr. Pincus and others have certainly proved that atmokausis when properly carried out is one of the most efficacious methods, if not the most efficacious, of arresting hæmorrhage from the uterus.

Recent Advances in Physiology and Bio-Chemistry. Edited by LEONARD HILL, M.B. Lond., F.R.S. Contributors: Leonard Hill, M.B. Lond., Benjamin Moore, M.A., D.Sc.; M. S. Pembrey, M.A., M.D. Oxon.; J. J. R. Macleod, M.B. Aberd.; and A. P. Beddard, M.A., M.D. Cantab. F.R.S.; London: Edward Arnold. 1906. Price 18*s.* net.

OUR German *confrères* have accustomed us to *résumés*, Centralblatts, and recently to "Ergebnisse" on various topics. This volume is a welcome departure in a similar direction by five English physiologists who have essayed with success to give a critical *résumé* of certain subjects that have specially attracted the attention of physiologists and of chemists in recent years. Even the word "bio chemistry," though it does not denote a new departure, foreshadows a new method of regarding the relations of chemistry and physiology. Dr. Moore, indeed, in his thoughtful essay on living matter goes further than either chemist or physicist and speaks of "biotic energy." The real problem before us is that of the chemical reactions and exchanges that are taking place in the cells—reactions that are really reactions in solution. Recent investigations have shown the enormous part taken by intracellular enzymes acting as energy transformers, and the chapter on the action of enzymes is well worthy of perusal. The intracellular enzymes—and they are many—are shown to be adapted, controlled, and coördinated by the cell. By a gentle transition we arrive at the "kinases," a section of the book that is of very great interest. The whole subject of secretion is fully dealt with. Indeed, what is often spoken of as secretion, absorption, and excretion are but different phases of the same process distinguished from one another not by things intrinsically different in their nature or in the mechanism by which these processes are carried out in the body, but rather by their object or physiological function. Moreover, respiration is essentially identical in its nature with these three processes and Dr. Moore treats the subject from this wide and comprehensive point of view.

Dr. Hill gives a capital account of the effects on life of lessening or increasing the barometric pressure, a subject which he has made specially his own. He also is responsible for the chapter on water in relation to metabolism and the regulation of body temperature, and for a chapter on metabolism of fat. Dr. Macleod deals with metabolism of the carbohydrates, a subject which naturally leads to the cognate question of diabetes, whether experimental, pancreatic, or produced by the administration of phloridzin or adrenalin. Proteid metabolism as such is not specifically dealt with but the questions connected with uric acid and the purin bodies absorb about 50 pages. By the same author we have another 40 pages on hæmolysins and allied bodies, a review of the work of the past few years on this and cognate subjects. Dr. Pembrey gives an account of respiratory exchange on well-known lines and to him falls also the subject of internal secretion. Perhaps this latter chapter might have been extended with advantage. Dr. Beddard deals with rather a heterogeneous group of subjects—namely, the production of lymph, absorption from the small intestine, the formation of urea, and the secretion of urine. As to lymph formation the author agrees that experiments have shown that the importance of osmosis and diffusion is relatively greater, and that of filtration relatively less, than has been thought to be the case. He gives a *résumé* of his views on p. 615.

This work will prove most valuable to all students of medicine reading for the higher examinations. Moreover, to the clinician it affords a *catena* of the views of the chief authorities on such subjects as diabetes, uric acid metabolism, hæmolysis and immunity, caisson sickness, and the therapeutic uses of oxygen, and, indeed, all the newer problems which have such special interest for the thoughtful clinician and practising physician.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. (New Series.) No. 24. *On a Parasite found in the White Corpuscles of the Blood of Palm Squirrels.* By Captain W. S. PATTON, M.B. Edin., I.M.S. Issued under the authority of the Government of India by the Sanitary Commissioner with the Government of India, Simla. Calcutta: Office of the Superintendent of Government Printing, India. 1906. Pp. 14. Price, annas 12, or 1*s.* 2*d.*

SEVERAL hæmogregarinidæ have been discovered recently in the blood of mammals, and in view of the great importance which attaches to such forms the description of another example is of interest, especially as the parasite found by Captain Patton invades a special cell, the large mononuclear leucocyte. The mammal which harbours this parasite is the common, striped, palm squirrel of Kathiawar and Gujarat (Funambulus pennantii). Parasites belonging to the genus hæmogregarina have the following characters: they are elongated, fusiform bodies with the appearance of vermicules, and are seen lying coiled up in the cells or free in the plasma. They do not produce pigment and have no sexual form of development. In cold-blooded animals they are confined entirely to the red cells. Captain Patton discovered this parasite in May, 1905. On examining a drop of blood from an infected squirrel the parasite is seen as a clear elongated worm-like body measuring 10μ in length, lying in the substance of the large mononuclear leucocytes. The majority exhibit slow vermicular movements, altering their position in the cells. They may be seen lying close alongside the nucleus or at right angles to it. The nucleus becomes compressed, and in some instances almost encircles the parasite, while many of the nuclei are split into two separate parts, with the parasite lying between. The invaded leucocytes show extremely slight movements. Each body is oval with one end rounder than the other. The protoplasm contains a large refractile nucleus placed about the centre and some dark dots are seen moving in the protoplasm. The narrow end shows a distinct bend upwards simulating a tail. In fresh blood films containing a large number of parasites some of these bodies are seen escaping from the cells. After watching one, which appears particularly active, the more rounded end will be seen to cause the cellular envelope to bulge. It ruptures and the parasite is extruded. No space is left behind to show where the parasite was lying. Besides the encysted forms many are seen lying free in the plasma. They have the same appearance as those in the cells. The parasite stains readily with Romanowsky's stain and Leishman's modification. No distinct capsule can be made out by staining in the usual way, but by prolonged staining with Romanowsky's stain and also with Giemsa's a faint pink outline is seen around the parasite. Each stained body is oval in shape with one extremity larger and rounder than the other. It measures 10μ in length and 5μ across the broadest part. The protoplasm stains light-blue, somewhat darker at the two ends. The nucleus is a comparatively large irregularly quadrilateral mass, which lies about the centre. It occupies the whole of this part of the parasite, encroaching on the sides. It stains deeply but not uniformly, and contains from three to eight vacuoles. The protoplasm of all the invaded leucocytes stains feebly as compared with the normal cell.

In infected squirrels the large mononuclears form the bulk of the white cells; the mononuclear leucocytosis is found to vary in proportion to the degree of infection. The fact that a mammalian protozoon, which has the property of invading a special leucocyte, causes a change in the structure and an increase in the numbers of these in the peripheral blood may have some significance in relation to the origin of leucocythæmias. The parasites were always found to be present in the spleen. Special attention was directed to the liver in estimating the distribution of the parasite in the body. 14 squirrels were shot and smears were made from their livers. In all the parasite was found both free and in the mononuclear leucocytes, but no developmental forms were present. The parasite has been found in the body of the squirrel louse, which has been identified by Professor Neumann and Dr. Newstead as an undescribed species of hæmatopinus and is found in large numbers among the long hairs of the squirrel. Captain Patton draws the following conclusions from his researches. That the description of this parasite agrees in every detail with that of a hæmogregarine. That the parasite is highly specialised in that it selects the large mononuclear leucocyte for its host. Though closely related to leucocytozoön canis (James) it differs in not having a cytocyst and in possessing a tail. He proposes to name it provisionally leucocytozoön funambuli. As in the case of hæmogregarina gerbilli (Christophers) no developmental forms were found in the organs and the infection remains unaltered for long periods.

LIBRARY TABLE.

The Edinburgh Stereoscopic Atlas of Anatomy. Edited by DAVID WATERSTON, M.A., M.D. Edin., F.R.C.S. Edin., F.R.S. Edin., Lecturer and Senior Demonstrator in the Department of Anatomy, University of Edinburgh. Section 5. Edinburgh: T. C. and E. C. Jack. 1906. Price £1 5s. net. each section.—This being the fifth is the final section of the Atlas and Dr. Waterston is to be congratulated on the completion of his task. The last instalment is equal in interest to any of its predecessors. It is devoted to illustrations of the anatomy of the head and neck and the central nervous system, and to cranio-cerebral topography. The anatomy of the brain was in part depicted in the first part of the Atlas, but in the present section we find an additional series of ten illustrations which are excellent. We gather that these are views of specimens prepared by Dr. E. B. Jamieson who is also responsible for the brief descriptions which accompany them. We think that Dr. Waterston has been fortunate in obtaining Dr. Jamieson's coöperation, for the views in question are of great practical utility and give an excellent idea of some of the long tracts of the brain. The anatomy of the head and neck is fully illustrated, the nasal cavities, pharynx, and larynx being included. Ten views illustrate cranio-cerebral topography. These comprise illustrations of the child's brain and of that of the adult. By a method of composite photography the relations of the scalp, bones, and brain are shown in superposition. The value of these photographs is in a way limited, since everything is mapped out according to the method of Professor Chiene, a method which is not so well known as those methods which are associated with the names of Reid, Hare, Godlee or Anderson and Makins. In a note appended to the section Dr. Waterston dedicates the Atlas, with permission, to Principal Sir William Turner, K.C.B., whose researches and teaching have done so much to advance the science of anatomy both in this country and abroad.

Cheltenham. Burrow's Royal Series of Official Albums. No. 7. Written by J. H. GARRETT, M.D. Durh., Medical Officer of Health of Cheltenham. With 120 coloured and other illustrations. Published under the auspices of the Corporation and the Chamber of Commerce, Cheltenham, by Edward J. Burrow. Fifth edition. 1906. Pp. 163. Price 1s.—This official guide to Cheltenham was published under the auspices of both the Corporation and the Chamber of Commerce on the occasion of the opening of the new spa. The old fashion of drinking the Cheltenham waters, which was set by Royalty in the person of George III., subsided chiefly owing to the ease of foreign travel, but the use of the waters is now being revived. The wells are chiefly owned by the corporation, which body collects the waters and offers them in convenient forms, at several different places in the town, for the use of those who may desire them or who have been ordered to take them by a physician. The waters are mildly aperient, alterative, diuretic, and antacid and are of two kinds—the magnesia-saline and the alkaline-saline waters. The magnesia-saline is sold in a concentrated form, so that a moderate draught may have an aperient effect. Some excellent baths have been built by the corporation for use in conjunction with the mineral waters and it is stated in the album that any form of medicated or special bath that the physician chooses to order can be prepared and administered by trained attendants. The brine bath is a Cheltenham specialty. The fittings and decorations of the baths and the furnishing of the dressing-rooms appear to be of the first order. The Cheltenham spa should be deservedly popular, for the town compares favourably with other large towns in its general sanitary condition, and its climate possesses the two very essential features of a dry atmosphere and an abundance of bright sunshine. This album is a useful guide, the letterpress being interesting and the illustrations good. Its cost is only 1s.

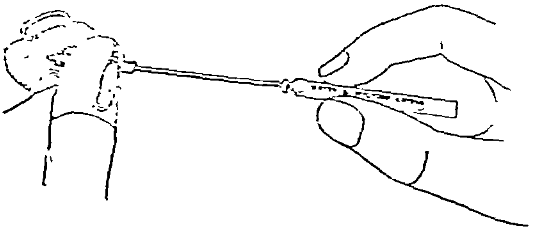
Studies in Anatomy from the Anatomical Department of the University of Manchester. Vol. III. Edited by ALFRED H. YOUNG, M.B. Edin., F.R.C.S. Eng., Professor of Anatomy. Manchester: At the University Press. 1906. Pp. 289. Price 10s. net.—This forms the third volume of the Studies in Anatomy issued by the Council of the Owens College and contains contributions of considerable interest. There are ten papers included, but six of these are reprints from the *Journal of Anatomy and Physiology.* The new contributions are four in number. A paper by Professor A. H. Young and Dr. W. Milligan shows the anatomical and developmental continuity of the Eustachian tube, tympanum, and mastoid antrum. Attention is drawn to the very early development of mastoid air cells and some observations are appended on the treatment of septic inflammation of the tympanic cavity. Dr. J. Dunlop Lickley discusses the Morphology and Development of the Human Sternum. This paper is a summary of a larger monograph which was presented as a thesis for the M.D. degree of the University of Glasgow. The paper is critical and instructive and questions some of the recent deductions of Professor A. M. Paterson and others. A copious bibliography is appended. Dr. J. Cameron contributes a paper on the Development of the Optic Nerve in Amphibians, in which he shows that the nerve fibres are formed by a combination of the central and peripheral modes of origin. The paper is welcome considering the discussions which have lately arisen in connexion with the development of peripheral nerves. An investigation by Dr. C. W. S. Saberton on the constitution of the nerve plexuses of Troglodytes Niger embodies the results of a very laborious research. The reprints in the volume are papers by Professor Arthur Robinson on the Formation of the Pericardium; Professor Peter Thompson on the Fasciæ of the Pelvis; Professor Young and Professor Thompson on Abnormalities of the Renal Arteries; Dr. F. C. Moore on the Unsymmetrical Kidney; Dr. Lickley on the Morphology of the Human Intertransverse Muscles; and Professor Young on the Lumbar Arteries. Most of these contributions are already well known to English anatomists. The volume is well printed and bound. It speaks well for the activity of investigation at Manchester.

Minor and Operative Surgery, including Bandaging. By HENRY R. WHARTON, M.D., Professor of Clinical Surgery in the Woman's Medical College of Pennsylvania. Sixth edition, enlarged and thoroughly revised. With 532 illustrations. London: Rebman, Limited. 1905. Pp. 650. Price 14s net.—The author of this work hopes that the broadened scope of its new edition will render the volume more serviceable to the student and to the practitioner. The favour bestowed on former editions has, the author says, acted on him as an incentive for keeping the book thoroughly revised and up to date. The whole volume is most liberally treated from the pictorial standpoint and the subject matter is thoroughly well arranged and explained. In successive editions the author has been led to add operations which are somewhat beyond the vague line separating major from minor surgery. Thus the book has been broadened beyond its original title in response to the expressed wishes of its readers. The great attention now paid in medical schools to operations on the cadaver and the importance of this method of instruction have led the author to include those procedures which can be advantageously practised upon the dead body, such as ligation of the vessels, amputations, excisions, operations upon nerves and tendons, and intestinal anastomosis. A number of operations which are frequently required in practice are also included, such as tracheotomy, intubation of the larynx, and the operations for appendicitis and for strangulated hernia. While this edition is therefore a comprehensive manual, covering all but what may be termed Capital Surgery, yet all the features which have met with favour in former editions are retained, including a concise description of the various bandages, surgical dressings, and minor surgical procedures employed at the present day. The art of bandaging is fully illustrated with reproductions of photographs, and a special chapter is devoted to surgical bacteriology. The subject of fractures and dislocations is photographically illustrated. The chapter on the preparation of materials used in aseptic operations and on the details of an aseptic operation is an excellent one and contains much valuable information. The directions in the section on intubation of the larynx are very clear; the author emphasises the necessity of hugging the posterior surface of the tongue closely. This edition will no doubt be as popular as the former issues have been. It is a good book.

New Inventions.

THIMBLES FOR MAKING WOOL MOPS.

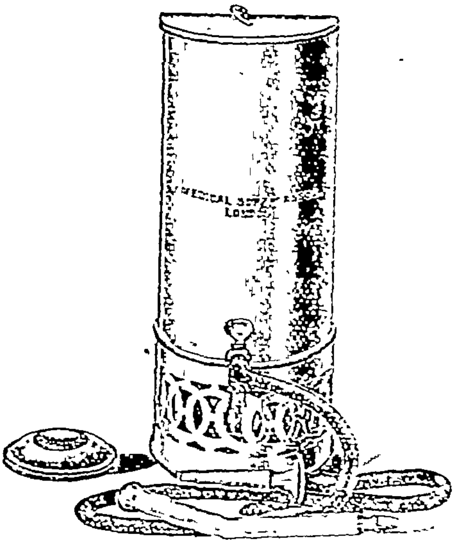
THE drawback of making surgical mops by holding the cotton wool between the finger and thumb is that in order to make them clean repeated washing of the fingers is necessary and even when this is done absolute cleanliness is doubtful. To avoid these inconveniences I have had the metal thimbles shown in the accompanying figure made for the left forefinger and thumb. They are flattened and provided with several shallow and one deeper groove on the opposing surfaces, where also the metal is dulled instead of being polished. With a little practice mops of any size can be rapidly made. The thimbles, which fit on to a little metal stand, can be boiled, stand and all, before use and if they are only kept on whilst actually making the mops they can be employed for a series of cases without any further cleaning. The handles are merely for lifting them off the stand. They have been made for ear, nose, and throat work but can, of course, be used to make mops for other purposes. I have found them more convenient than Kayser's forceps, which were devised with the same object. The thimbles are made by Messrs. Mayer and Meltzer, 71, Great Portland-street, W., in various sizes.



Brook-street, W. E. CRESSWELL BABER, M.B. Lond.

A COMBINED VAGINAL DOUCHE AND STERILISER.

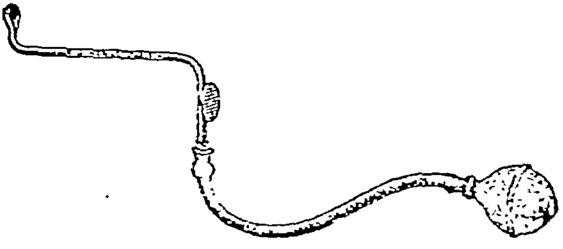
THE difficulty so often experienced by midwives in obtaining hot water in cases of emergency is obviated by this appliance. As it is provided with a lamp and is supported on a firm stand the midwife will always have the means of warming water so that a hot douche can be obtained in a few minutes. Again, in case the surgeon's aid is called in she can provide him with a steriliser for his instruments as it is large enough to hold forceps, &c., for sterilising purposes. Without the stand and lamp it forms an ordinary douche can. It is made of a convenient size and will easily go in the midwife's bag. *It has been made for me by* the Medical Supply Association, 228–230, Gray's Inn-road, London, W.C.



CLAUDE ST. AUBYN-FARRER, L.R.C.P. &S. Edin.,
L.F.P.S. Glasg.,
Physician-Accoucheur, Royal Maternity Charity.
Westbourne Park-road, W.

A NEW POST-NASAL SYRINGE.

THE advantages of post-nasal syringing over the more usual methods of flushing out the nasal passages are obvious. The only objection thereto consists in the somewhat greater difficulty of the proceeding. In order to facilitate this I have devised a modified post-nasal syringe which I find can be used by most people themselves with at least as much ease as the ordinary enema syringe, though, of course, there are some exceptions. The general appearance of it is shown in the illustration. The straight part of the metal nozzle is about five inches long and the extremity is turned up for a length of about three-quarters of an inch. The orifice is in the form of a deep, narrow slit, which delivers a flat jet of fluid when the indiarubber ball is compressed. The instrument is made by Messrs. C. J. Hewlett and Son, Charlotte-street, London, E.C.



Argyll-road, W. F. H. BURTON-BROWN, M.D. Oxon.

THE LANCET.

LONDON: SATURDAY, AUGUST 18, 1906.

Infantile Mortality.

WE publish this week three important articles bearing directly or indirectly upon the great question of the control of *infantile mortality*, articles which were read at the National Conference on that subject held on June 13th and 14th under the chairmanship of the President of the Local Government Board. Mr. JOHN BURNS showed himself to be fully conscious of the magnitude of the questions to be discussed, but the pressure of public affairs and of intelligence of other kinds served greatly to divert public attention from the proceedings of the Conference. It is not, however, too late to return to a subject of the first national importance, and the three contributions which we now place before our readers will afford excellent material for reflection not only to medical men but to all thinking people. Of the three articles that by Dr. GEORGE REID, medical officer of health of Staffordshire, throws the largest amount of light upon the actual causation of mortality, while the articles on milk-supply by Dr. A. K. CHALMERS and Dr. G. F. MCCLEARY indicate the directions in which remedies for the absence of breast-feeding may most hopefully be sought Dr. REID informs us that his attention was early directed towards the high infantile mortality of north as compared with south Staffordshire, the inhabitants of the former division being chiefly potters, whose women are largely engaged in factories, and those of the latter chiefly miners and iron-workers, whose women remain at home. A comparison between the two, carefully carried out over a series of years, entirely justifies the conclusion that maternal factory work is the chief and most widely operative cause of a high infantile death-rate. The figures given are conclusive. The percentage of female married and widowed factory workers to the whole female population between the ages of 15 and 50 years was taken from different localities. In five towns, in which this percentage was 12 or more, the infantile mortality was 193. In 13 towns in which the percentage was under 12 and over 6 the infantile mortality was 156; and in eight towns in which the percentage was under 6 the infantile mortality was 149. The lowest rate leaves much to be desired, but the difference between the highest and the lowest is far too great to be accidental. It appears, moreover, that the preponderant mortality of the children of female factory workers is at least partly due to defective viability induced by work during pregnancy, and on this part of the question the operation of the Midwives Act has already furnished important statistics. Up to the present time the midwives in the northern district have returned 9·4 per cent. of still-births and 15 per cent. of abnormalities in labour, against 3·2 per cent. of still-births and 6 per cent. of abnormalities in the southern. Dr. GEORGE NEWMAN, in his recent work on Infantile Mortality which we reviewed in our columns recently,[1] quotes Dr. REID'S figures, and declares that they are perhaps less emphatic than would be those of similar tables for Lancashire, where there are "seven times more married women employed than in Staffordshire."

If we leave out of consideration the manifestly considerable proportion of infants who come into the world handicapped by the operation of unfavourable maternal conditions during pregnancy, infants, that is, whose mothers suffer from long standing, exhausting labour, or unsuitable or insufficient food, we shall obviously find a chief cause of mortality, even among infants born healthy, in *the deprivation of breast-milk*, which is incidental to the absence of the mother at the factory, as well as in the ordinary character of the substitutes which are employed. Dr. CHALMERS and Dr. MCCLEARY show us how much might be done, if local sanitary authorities were acquainted with the nature of their duties and were desirous of fulfilling them, to improve the management of dairy farms and the quality of urban milk supplies; but, even if nothing were left to be desired in these respects, there would still be an active production of infantile mortality by the sheer ignorance of mothers. Sir WILLIAM BROADBENT recently characterised the indiarubber teat as "an invention of the devil," and it is by no means the only popular appliance which might be so described. The mothers among the industrial classes, as a rule, know nothing about the primary conditions of health for infants, and are guided by traditions handed down from bygone ages. A medical writer has placed on record that his instructions about the management of a sick child were departed from on the advice of a neighbour whose claims to be accepted as an authority were based upon the fact that she had "lost nine children of her own," and the experience of this writer is one that might have been anticipated. Similar things happen daily. Parents of the working classes constantly say of their baby, "We give it what we have ourselves," this including not only forms of food wholly unsuited to the infantile digestive organs, but not seldom "a sup of beer." To medical practitioners, conversant with the habits and dwellings of large classes of the poor, it is less wonderful that children die than that they survive, more especially when, as often happens, the discomfort produced by improper feeding is relieved by the administration of a narcotic. Professor RAY LANKESTER, in his recent address as President of the British Association for the Advancement of Science, dwelt with much force upon the truth that the political administrators of this country, as well as the permanent officials, are altogether unaware of the importance of the knowledge which we call science, and of the urgent need for making use of it in a variety of public affairs. He traces the defect, quite correctly, to the "defective education, both at school and university, of our governing class," but he fails to call attention to the fact that the education of the middle-class, which supplies the bulk of our "local authorities," is at least equally defective, and that the business committed to them is as badly done as that of the nation. We have had a third of a century of compulsory so-called "education" of the working classes, and the most obvious outcome of it has been to render them the prey of designing advertisers. The girls of the present day know no more than their great-grandmothers about the cooking of wholesome meals or about the nurture and feeding of infants, and that this should be so is a grave reflection upon the community.

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[1] THE LANCET, July 28th, 1906, p. 230.

The framers of the Education Act of 1870 may, perhaps, be asumed to have had no distinct consciousness of the full meaning of the principle which was established by their legislation. That principle is, we take it, that the State asserts a degree of proprietorship in the children born within its boundaries, and hence becomes charged with responsibilities to them which it is very difficult either to limit or to define. It compels the children to undergo, at the cost of the public, a process which is described as education. It becomes responsible to the children for securing, firstly, that this process shall not be actively injurious to them, and secondly, that it shall be as useful as circumstances will permit. It becomes responsible to the public for the proper use of the public money, and is bound to see that this is not wholly wasted or thrown away. The precautions necessary for the attainment of these ends are chiefly such as were formerly supposed to devolve primarily upon parents; and hence, in whatever degree they are accepted by the State, it becomes necessary for the State to control or to supersede parental management. It is clearly injurious to an underfed child to be compelled to exert his brain about tasks; and hence, if the tasks are to be enforced, the State must see that the parent *feeds* the child properly, or must itself supply the deficiencies in this respect. Sufficiency of food bears a definite ratio to sufficiency of clothing, and this also may come within the province of the State. An infant below school age is nevertheless, if not an actual, at least a prospective, source of public expenditure, and hence the State becomes concerned to see that his earliest years are so passed that he may not be a useless investment for public money when school age is reached. It follows from compulsory education that the past liberty of parents to deal as they pleased with their children must in many respects be limited or curtailed in the public interest, and the sooner this is generally realised the sooner shall we get down to some bed-rock of principle with regard to the care and treatment of those who are to form the backbone of coming generations. Is it not time that our law makers took some thought for the descendants of our race? "Labour" Members are becoming conspicuous in Parliament, and are likely to strive after legislation by which they will hope to benefit their class. At present there is no indication that their efforts will be guided by adequate knowledge, and there is great need for the aid of science to be invoked. Infantile mortality on the one hand and a dirty and adulterated milk-supply on the other are mere symptoms of derangement in the body politic, but they are symptoms likely to be far-reaching in their consequences. The Education Board and the Local Government Board must have scientific guidance. Effectual reforms can only be attained under such guidance, and knowledge of the means by which physical health and efficiency can be secured falls strictly within the sphere of the medical profession. This knowledge is ready to come to the aid of legislation, and surely the time has arrived when legislators should be ready to appreciate the assistance offered.

Human Diet and Human Efficiency.

No catchword has been more mouthed of recent years than efficiency. Books in praise of efficiency or giving instruction in efficiency abound—we reviewed one such volume last week and gave it due praise; the efficiency of public bodies of all kinds, of the army and the navy, the War Office and the Admiralty, the House of Lords and the House of Commons, has been questioned and discussed till the very word efficiency has become almost a burden to the ear. Now, if individuals are not efficient no corporate body is likely to be so in the nation which these individuals compose, while grave difficulties face statesman and sanitarian alike when an attempt is made to decide what are the best methods for obtaining efficiency. Broadly looked at, all national schemes of education, whether for general purposes or for such special aims as those of the public services, are steps along the road to efficiency, but they are not the commencement of that road, and the beginnings of the real road are too often neglected. Efficiency looked at from the frankly medical point of view resolves itself into the health of the individual. The healthy mind in the healthy body (a phrase as over-used as is the word efficiency) none the less contains the truth, and those who are most urgent that our public work should be thorough must, if they are logical, show themselves most anxious about our public and our individual health. Some of the most important subjects upon which the proper healthy development of man and woman depends are barely touched upon in the educational schemes of to-day, whether we look upon the education of the masses or whether we regard the more fortunate thousands who grow up either in the great public schools for boys or in the corresponding institutions for girls. The strides that science has made in the last half century have not been paralleled by the art of education. The latter has been content to loll behind, noticing perhaps with admiring gaze the progress of her sister but hardly dreaming of any emulation of her activity. Is there, then, no science of living, no art of the conduct of life, that teachers may instil into the minds of their pupils? Most assuredly there is, and it is the most important of all arts and sciences. Yet to find its pursuit as a national ideal the imagination must almost return to the days of ancient Greece. We do not belong to the ranks of those who croak and cry "national decay." We believe that, despite the undoubtedly evil influence of large towns, national decadence is not upon us. The robust inheritance of British ancestry is far from worn out, but we are ardent supporters of those who wish to see no step untrodden that can lead to the finest results from the activities of our national character. Somehow, as has been said, we as a nation "muddle through and come out successfully." Who would not like to see the muddling exchanged for the strong and direct action of a nation that had studied and that was practising the science of life?

This science of life, as we comprehend it and as we would have it taught to children, has two main directions. The first leads to spiritual development and the second to the perfection of bodily health and purity. The latter is well expressed in the sacred writings of the East where bodily happiness is described as "lightness, healthiness, peace, a good complexion, beauty and grace, perfect fragrance, a melodious voice, and light excretions." To what degree is any bodily ideal of this sort put before English children? It is true that swimming-baths and open-air games are well patronised, instincts of cleanliness and a wholesome liking for bodily exercise being thus encouraged, but children should also be taught the beauty of personal hygiene, and the part which it plays in the greatness of a nation. They should be led thus from its personal to its corporate and its national application. We are not so sanguine as to believe that the evils of overcrowding and of town living generally would disappear before the clear ideas and the clean desires of a manhood and womanhood thus instructed, but undoubtedly national physique would be in less danger of degenerating at the hands of men and women who had grown up with a knowledge and understanding of proper bodily development. Our readers know so well how largely growth and development depend upon nutrition that they may, some of them, fail to realise how densely ignorant of such matters the mass of the population is. The matter is one upon which instruction might most profitably be given as part of a scheme of national education. What does the child or the young man or woman of to-day know about the nutritional values of the different kinds of food? Not one out of any ten average men or women has any simple rational principles or knowledge to serve as guide in the choice of food. This is shown by the violent faddishness and extravagant credulity of those who do make attempts to regulate their diets every whit as much as by the horrible errors of dietary so familiar to the general practitioner, and now and again made public during the proceedings at a coroner's inquest. The lower animals are more fortunate in respect of their diet than is the majority of human beings, for in the wild state the young animals are carefully guided and instructed as to their prey. They are shown what to eat and how to get it. Science and experiment have recently shed much light on the food problems that affect human beings. They have brought to light new facts as to how much food the healthy organism requires and as to what should be the nature of that food. Knowledge of this kind is of the greatest value in its relation to the economy and the health of a nation's population. Yet the dissemination of such knowledge in simple terms amongst those of an age when the habits of life are most easily and most surely formed is at present almost entirely absent.

We have been moved to some of these reflections by the perusal of a book entitled "Humaniculture,"[1] written by Mr. Hubert Higgins, an English medical man practising in Italy, whose paper in our columns last year, entitled "Is Man Poltophagic or Psomophagic?" attracted considerable attention. Those of our readers who are familiar with the work of Professor Chittenden and Dr. Robert Hutchison will have no difficulty in realising the new knowledge now at our disposal in the matter of diet, nor need we on their account lay stress upon the far-reaching effects of correct behaviour in this respect. To others desiring a simpler gospel, one that can be handed on almost without translation or exegesis to their patients, we commend "Humaniculture." Mr. Higgins is a worker upon the lines of Mr. Horace Fletcher, whose ideas and experiments in the matter of food and feeding we have previously commented on, and whose work has received the official recognition of the International Congress of Physiology. We are not prepared to support all the theories advanced either by Mr. Fletcher or by Mr. Higgins, but we recommend without hesitation much of the practice which they advocate. The old and salutary advice to eat little and to take a long time over it is the gist of their message. What is new, however, in Mr. Higgins's book is the careful clinical experiments upon which the assertions rest, and the alteration of the proteid standard which their acceptance involves. As is well known, Mr. Fletcher has succeeded in arousing enlightened enthusiasm not only in his own country of America but also in the University of Cambridge, where Sir Michael Foster superintended the work undertaken to test his views. It may seem to many that the simple practice of eating sparely and eating slowly has little to do with national questions or even with individual and moral advantage. Even when dignified by the name of "poltophagy" chewing does not seem a matter of wide significance. Yet who is to draw the line where physical and psychical influences cease to take effect upon each other? Goutiness and a quick temper, dyspepsia and melancholy, are merely gross instances of the interaction of mind and matter, and there is no doubt that there are many associations between the two that can at present be only guessed at. Without attributing too much to the influence of food, we may safely assume that the nation which boasts the most rationally fed individuals will, in the long run, have the best chance in international struggles. We cordially welcome any attempts to educate our population, either through or independently of the medical profession, in the principles of healthful diet.

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Employment for Working-class Consumptives.

THE after-care and the possibilities of occupation for the consumptive patient of the operative classes together constitute a sociological and economic problem of considerable importance and of very great difficulty. A carefully thought-out and highly suggestive contribution to the discussion of this problem by Dr. M. S. Paterson and Dr. F. C. Shrubsall was published in THE LANCET of July 28th, p. 217, and is worth very careful consideration by all who may have to give advice to such patients. It must be admitted at the outset, as the authors claim, that the advice is often given to such patients to change their occupation and to obtain "open-air" employment without due consideration of the difficulties liable to be encountered in effecting such a change. In other words, the advice, though eminently sound in theory, is impracticable.

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[1] Published by Frederick A. Stokes Company, New York. Pp. 355, 8vo, price $2.

Dr. PATERSON and Dr. SHRUBSALL point out very forcibly how absolutely hopeless may be the outlook of an unskilled labourer, or even a man with an indoor trade or occupation, when he endeavours to obtain outdoor employment of which he has no skilled knowledge; and as they very pithily remark, "there is a certain tendency to forget that starvation is a more serious trouble than tuberculosis." The conclusion arrived at, after a very careful discussion of the possibilities usually suggested to the patient with arrested tuberculosis, is that so far as possible he should return to his own trade, while those without a trade should be largely governed in their choice of an occupation by their wage-earning capacity thereat. The authors further refer to the statistics of German sanatoriums, which seem to prove that cases discharged as quiescent or arrested are capable of returning to their former occupations for periods of three, four, or more years.

With regard to some occupations, the ordinary conditions of work being not unfavourable, the advice to return to their former duties is obviously sound; this applies with especial force, as Dr. PATERSON and Dr. SHRUBSALL urge, to vanmen, tram and omnibus drivers, and most classes of railway servants. It is, however, in the case of those whose work has to be carried out under less favourable conditions that the problem is so difficult, as, for example, those working in factories, workshops, offices, and warehouses. The alternatives usually suggested to patients in such circumstances, after arrest or improvement of the disease, are carefully and fully criticised by the authors. Considering first the suggestion that the patient should obtain some open-air occupation, preferably in the country, they point out that they are then likely to swell the already crowded ranks of unskilled labour for which they are not well fitted, and thus to earn less than they did at their former occupation; hence they are liable to sink into conditions unfavourable to their future progress. The second alternative often put before them is that of emigration; here, again, it should be remembered that unless the person emigrating has some skilled occupation or some special employment guaranteed he is likely to drift into unsuitable places or to fall upon hard times. The third alternative, that of going to sea in some capacity, whether as steward or purser's assistant, is one which is hardly likely to be recommended by anyone knowing the conditions under which they may have to live, so graphically outlined by Dr. PATERSON and Dr. SHRUBSALL in their paper. Dr. PATERSON'S and Dr. SHRUBSALL'S contentions are reinforced in two letters which we publish in THE LANCET of August 11th. One of the writers, Dr. W. G. KINTON, the resident medical officer, Mount Vernon Hospital for Consumption and Diseases of the Chest, rightly remarks that energy might well be expended in concentrating attention on the conditions under which patients have to return to work, instead of regarding only the nature of the work itself. He also lays stress on the importance in enlightening the general public on the general laws of hygiene, so that patients may find help on all sides in continuing the correct mode of life necessary to them. This is a point upon which we have frequently insisted. Mr. T. H. A. VALINTINE writes with especial reference to the matter of emigration, and points to the necessity of great caution being observed by medical men or by friends before discharged patients are recommended to emigrate. Unless they are sure of immediately finding suitable employment on arriving in a new country they may simply starve, or be compelled to face hardships that will interfere with their convalescence.

If we turn to consider the outlook of such patients as return to their former occupations after treatment at a sanatorium or a special hospital, we find that the education as to the advantages of fresh air, ventilation, suitable diet, and self management, which they have received, should enable them to work under better conditions, and even to instruct those among whom they work. Again, their productive or wage-earning capacity is likely to be greater than at a new occupation assumed without special knowledge and against competition, and this is a point very strongly insisted upon by the authors in their paper and one which has influenced them strongly in arriving at their conclusions. We can in most respects cordially endorse the recommendations given by Dr. PATERSON and Dr. SHRUBSALL. It is a familiar fact in out-patient practice at both general hospitals and special institutions for diseases of the chest that patients with chronic tuberculous disease of the lungs go about their work for years, and support themselves and often their families without undue strain, and, so far as can be seen, without markedly prejudicial effect upon the course of their disease. At the same time it must be admitted that in many cases it is practically impossible for the patients to resume their former work—e.g., men invalided from the navy or army, and those whose occupation entails work in hot or moist air, such as laundry work, must find a new outlet for their energies; while in the case of domestic servants, especially those having care of children, fear of infection will preclude their resumption of their duties. It is in such cases that it is extremely difficult to give useful and practical advice, and we cordially echo Dr. PATERSON'S and Dr. SHRUBSALL'S hope that their admirable paper may "at least draw attention to the subject and so help the unfortunate consumptive to be advised thoughtfully as to his future."

Annotations.

"Ne quid nimis."

THE VENTILATION OF THE HOUSE OF COMMONS.

IN a report recently published the last word has been said, even in the light of bacteriological science, as to the defects of the air-supply of the House of Commons. The recommendations contained in this report have already been foreshadowed in an annotation in THE LANCET of April 1st, 1905, in which a report on the quality of the air in the House by Dr. M. H. Gordon was discussed. A Select Committee, which was appointed under the presidency of Sir Michael Foster, has come to the conclusion that on the whole there was little to be said against the quality of the air-supply, but at the same time it acknowledged that this conclusion was opposed to the common experience of many Members of the House, whose opinion it was that the air lacked freshness, that there was missing in it the important element of vitality. It is probable that the whole question is after all one of suitable temperature and humidity, and we understand that further observations are to be made on these important points. We very much doubt if either the chemistry or the bacteriology of the air of the House of Commons has anything to do with the depressing effects complained of, or with the prevalence of influenza amongst the Members at a time when that disease was epidemic. We still hold to the belief that the physics of the air-supply of the House is wrong, and we are confident that when the temperature and humidity of the air are controlled in accordance with healthy requirement little more will be heard of the unhealthiness of the atmosphere in the legislative chamber. Meanwhile it is interesting to note that the evils arising from dust promise to be mitigated by the use of a vacuum cleaner, and already some half hundredweight or so of dust has been removed weekly from the floor and precincts of the House.

THE GERMAN LANGUAGE AND MEDICAL MEN.

The British Association for the Advancement of Science at its recent meeting considered the question that was brought forward by Mr. J. G. Robertson of the position of German in the educational curriculum. The proportion of medical men in this country who are able to read German books is very small, yet the number of German books worth reading is very large. The amount of knowledge of the language necessary for profitable perusal of technical books is so comparatively slight that it is a great pity that the necessary trouble is not more often incurred to acquire this knowledge. To any man who has mastered German enough to enjoy its general literature there is open an enormous field of philosophy, poetry, and romance, different from, yet almost the equal of, our own inheritance in this respect. Even without attaining to this point, however, medical men can derive great profit by the smaller knowledge sufficient for technical works. In many branches of science at the present day the German contributions are perhaps the most important of any, and in all branches of medicine they are, at any rate, very far from being deserving of neglect. Mr. Robertson dilated upon the unhappy decline of German as a school subject in England in recent years. Presumably it is secondary to this ill-merited neglect in schools and in universities that there is in our own profession so comparatively small an appreciation given to the wealth of good material provided by German scientific writers for anyone who is to a sufficient extent master of the tongue. German is undoubtedly a difficult language. Enough German, however, to read with profit technical books is not beyond easy acquisition, given moderate perseverance.

THE ANALYSIS OF THE WATER FROM THE HOLY WELL OF ZEM ZEM.

According to an analysis which we have made of a sample of water taken recently from the holy well of Zem Zem the sanitary condition of this precious fluid has made little advance during the past quarter of a century. The present makes the fourth opportunity we have had of making such an analysis, the results of previous examinations having been recorded in The Lancet of Jan. 5th, 1884, p. 33; May 14th, 1892, p. 1075; and Jan. 31st, 1903, p. 327, respectively. The recent specimen examined was forwarded to us by Dr. Frank G. Clemow of Constantinople, British Delegate to the Ottoman Board of Health. The sample was contained in a hermetically sealed tin flask. When undisturbed the water was quite bright, but it contained a sediment of a rusty colour and examination proved this deposit to consist largely of hydrated oxide of iron. There was a distinct pressure in the flask and on opening it a perceptible quantity of gas escaped, which was probably nitrogen. There can be little doubt that the metal container had acted upon the nitrates and reduced them to nitrites and eventually ammonia, in the same way as would the metals copper and zinc when in contact with each other, constituting a galvanic couple. As will be seen from the analyses below, the water contains a comparatively immense quantity of free ammonia. It matters little, however, in what form the nitrogen exists, whether, that is to say, in the form of ammonia, nitrites or nitrates, its only source, as a rule, must have been at some time or other organic matter. That there are manifold opportunities for organic matter to gain access to the well is made very clear from the accounts of many travellers who have witnessed the sacrifices of beasts which are annually held in the neighbourhood of the well. It is probable that the infiltrations of countless carcasses reach the well sooner or later. Moreover, it is part of the ritual that in addition to drinking the water the pilgrim has the fluid poured over him; this water trickles away from his person back to the well, and he is doubly grateful when he discovers on retiring that the cloth round his loins is wet. What wonder then that the water presents on chemical analysis abundant evidences of impurities, and is found to contain phosphates and nitrogenous matters both in the oxidised and unoxidised state. There are, no doubt, active self-purifying processes at work, but that their intensity is not sufficient to cope with the large amount of pollution taking place is plainly apparent from analysis. It is interesting, however, to observe from the following analyses, made at intervals of several years, the variations which take place in regard to the individual items on which the sanitary or insanitary character of a water is broadly based:—

—	1883.	1892.	1902.	1906.
Total solids	464 4	235 2	350·0	200·2
Chlorine	75 5	40 7	72 1	49 7
Nitrogen in nitrates and nitrites ...	13 8	4 4	14·0	0·28
Free ammonia	0 35	0 14	0 14	0 32
Albuminoid ammonia	*Nil.*	*Nil.*	0·02	Trace.

The results are expressed in grains per gallon. The chief variation is in regard to the nitrogen in the form of nitrite and nitrate, the amount of this depending upon the original pollution and the extent to which the nitrogenous matters are oxidised by natural agencies. In the last sample examined nitrites predominated, and the water rapidly decolourised an acidified solution of potassium permanganate. The residue on evaporation gave off a sickening odour on heating and the mass blackened considerably. A very distinct reaction for phosphates was obtained. To say that the water is tainted would be a mere euphemism; it is grossly polluted. Some idea of the extent of this pollution may be gained from the fact that the water of the holy well of Zem Zem contains about 90 times more free ammonia than does the ordinary London drinking water-supply.

THE THERAPEUTIC APPLICATION OF SUGGESTION.

Dr. Mathieu, in a paper read before the Société Thérapeutique de Paris and published in the *Journal de Pharmacie et de Chimie* of July 16th, has recorded the results of his experience in employing suggestion as an aid to therapeutic treatment in the Andral Hospital. In cases of nervous dyspepsia he has obtained great success not by having recourse to pure mental suggestion but by the time-honoured method of administering various harmless substances as vehicles of suggestion (*véhicules de la suggestion*). In nervous cases where a sedative was required he has prescribed dandelion under the name of extract of taraxacum dens leonis, assuring patients suffering from *sialorrhœa* that it was an extremely powerful drug. Equally good results were obtained by prescribing applications of collodion, coloured with methylene blue, for pains in the dyspepsia of neurotic patients. Dr. Mathieu has found that insomnia can be successfully treated with chloroform water in teaspoonful doses or by one-gramme doses of sodium phosphate. The latter has given such good results as a soporific that Dr. Mathieu raises the question whether it may not exert a sedative action apart from suggestive influence. He has given injections of a simple physiological salt solution, labeled "Morphine B," and has observed—as we may say dozens of resident medical officers in hospitals must have observed before—that patients have the same craving for the substitute as they have for an actual solution of morphine. A similar solution, disguised under the name "antiphymose," when injected subcutaneously, has caused marked improvement in cases of tuberculosis; patients so treated eat and sleep better and gain in weight. Dr. Mathieu does not claim novelty for this method of treatment but he lays stress on the fact that recourse to medication by suggestion may often enable the physician to recognise the purely nervous or psychic nature of some morbid manifestations. He further suggests that the use of simple salt injections affords a criterion for the valuation of new serums, which should not be regarded as efficacious unless they produce better results than are obtained by the combined psychic and physiological action of salt solution.

SEA-NETTLES.

A MAN, practically *in puris naturalibus*, would not voluntarily throw himself upon a bank of stinging nettles, although he would be confident that no real harm would ensue. The proceeding would be attended with inconvenience and some discomfort of course, but, generally speaking, there is nothing disastrous about the sting of the common urtica, and no fear is usually entertained of its results. All that is needed after being stung with nettles is a little patience, for, as a rule, the urticaria soon passes away, as every bare-legged child knows. The same is true in the case of the sea nettle or the jelly-fish but most persons exhibit a much greater dread of an encounter with a sea-nettle than with the common stinging nettle of our hedgerows. There are instances, of course, in which constitutional symptoms arise after the stings of the jelly-fish, but these, on the whole, are rare. The jelly-fish stings much in the same way as the nettle—that is, by means of an acrid fluid discharged through a filament. The filament may be barbed or serrated and is usually coiled within cells which turn inside out on contact or pressure and thus bring the filament into touch with the body, conveying the fluid through the surface penetrated. The ordinary stinging nettle is furnished with a stinging hair from which an acrid fluid escapes when the brittle tip is broken off by contact. When examined under the microscope the hair presents the appearance of a glass tube full of fluid. On breaking the top off, as by simple contact with the hand, it will be found that some of the fluid contents have been discharged. The sting of the jelly-fish, as a rule, produces merely superficial effects, and it is usually only the larger kinds which are venomous, the small ones being without effect at all. The most formidable creature of the class perhaps is the Cyanea capillata which is distinguished by a long train of ribbon-like streamers floating after it. Contact with these streamers may result in tortures of burning and prickling, which, however, are little worse than the effect produced by the ordinary stinging nettle. The Portuguese man-of-war (*Physalia pelagica*) appears to cause more alarming results, though, as a rule, they pass harmlessly away. There is a severe and stinging pain extending up the limb, sometimes with feverishness, and there are the usual wheals on the skin, and irritation. In the same way sea anemones will sting that part of the body brought into contact with their tentacles, but again the effects, though very irritating and possibly alarming at the time, are usually transient. On the whole, the stinging effects of jelly-fish have been exaggerated, and bathers in the sea need have no greater fear of them than of the ordinary stinging nettle. The urticaria caused by both is generally relieved by the application of a bland soothing oil.

IDENTIFICATION BY FINGER-PRINTS.

IN the last report of the Commissioner of City Police some interesting figures are given with reference to the results which have been recently obtained by the finger-print method in the identification of habitual criminals. Captain Nott Bower states that during the past year 1028 persons were arrested for offences under the Prevention of Crimes Act, such as being found in inclosed premises or in other circumstances suggestive of felonious intent. Of these individuals 562 were not recognised as recidivists at the time of their apprehension, but on their finger-prints being taken and compared with the Scotland Yard registers it was ascertained that 265 of them were old offenders. This result is a striking illustration of the practical value of the simple and rapid method which has been elaborated in this country by Mr E. R. Henry; and its significance is, of course, still greater when it is considered in connexion with the more radical methods of dealing with habitual criminals towards which public opinion is gradually moving. A perfectly safe test of identity is, in fact, the first condition precedent to the adoption of any scheme for eliminating the professional criminal, or at all events for restricting his mischievous activity, and for excluding the dangers of any such miscarriage of justice as occurred in the Beck case.

ARTERIAL EMBOLISM.

IN another column we publish the record of a case of mitral stenosis complicated with embolism of six main arteries. The patient was admitted into the St. Marylebone Infirmary suffering from cardiac disease and bronchitis. At first he improved under treatment and was able to be up all day. Suddenly symptoms of collapse developed, accompanied by severe pain in the legs and abdomen, paralysis of both lower limbs and of the left arm, and loss of sensation in both legs. Some of these symptoms abated but death ensued in the course of 24 hours. At the post-mortem examination there was well-marked constriction of the mitral valve with recent vegetations on the wall of the left auricle. Embolism of the following arteries was found: both common femorals, the right internal iliac at its bifurcation, the right renal at its division, the superior mesenteric just below the middle colic branch, and the left brachial at the origin of the superior profunda branch. Embolism as a complication of mitral stenosis is a fairly common phenomenon, and the arteries of the brain and of the kidneys are those most usually affected. Next in order of frequency are pluggings of the splenic arteries, and occasionally the arteries of the pancreas, the stomach, and the intestines are found blocked by emboli. In cases in which acute endocarditis, especially infective endocarditis, has supervened, the limitation of the emboli to the viscera is not so decided, for peripheral arteries may then be affected, more particularly the posterior tibial, brachial, and popliteal. The number of large vessels involved in the case recorded by Mr. R. S. Roper is of considerable interest, more especially as the cerebral vessels seem to have escaped altogether. Pulmonary infarcts are also not uncommon in cases of infective endocarditis, but in this instance they did not occur. It would have been interesting to have obtained a bacteriological examination of the recent vegetations in the left auricle, although in the clinical course of the case there was nothing to suggest that the endocarditis was of an infectious nature.

SCHOOL TRAINING FOR HOME DUTIES OF WOMEN.

AT the recent meeting of the British Association for the Advancement of Science Professor Arthur Smithells, F.R.S., read a very interesting paper upon the subject of the training of women while still at school for home duties. He pointed out that in a number of homes it is impossible for the mothers to teach the children since the mothers have no knowledge, and even if they had the knowledge the children have to go out to work. In a different class of the community, where it might be thought that girls could be trained at home in matters regarding the management of the home, the training of the daughters cannot be properly carried out on account of the "ignorance, prejudice, and folly" of the domestic circle. Professor Smithells thinks, and we think with him, that a great deal of simple instruction in the elements of the household arts, and in the inculcation of clean and orderly habits of living, should be given at school, and he laid special stress upon the teaching of science. He alluded to many of the common phrases in use in a household as evidence of an absolutely unscientific attitude. The common phrases, "It has gone wrong," "The jelly won't set," "The meat won't keep," and "The fire won't draw" make up the language of superstition, for a demon of perversity is implied behind them, the true cause of the troubles being unknown. And here he pointed out how many schoolmistresses who have taken high degrees in science can give no intelligible account of the reasons why certain things happen, or do not happen, in a house—they do not know, for example, why washing soda "goes white or why brass goes green." We are in full sympathy with Professor Smithells's contention that even the most elementary scientific knowledge is absent from most of our households; every medical man must have noticed the fact. We are glad, therefore, to learn that he has found it possible to arrange a course of science lessons in which scientific discipline and scientific method can be inculcated by simple experimental work, based entirely on matters of the household and of daily life; "where," to use his own words, "the information acquired is truly useful knowledge; and where the minds of the pupils are awakened to the fact that the household is a laboratory of applied science." The way of the wife and mother of the future, to say nothing of that of the husband, would be rendered more easy if the home could be worked upon the lines suggested.

COLOURED URINE.

THE *Edinburgh Medical Journal* for June contains a useful article by Dr. W. Murrell and Dr. Wilson Hake on the various causes of abnormal colouration of the urine. In the majority of cases of blue or green urine the colour is due to the administration of methylene blue. A green colour may result from admixture of the methylene blue with the normal yellow colouring matter of the urine. Green urine may also be due to biliverdin, which may be easily recognised by its characteristic tests. In a small minority of cases blue or green urine is due to other causes, and although most of these are well known, a summary of them is of value and interest. Indigo-blue urine is rare; large quantities of indigo may be taken without affecting the urine. The indigo found in urine is formed from indican, a normal constituent and a derivative of indol, a product of intestinal digestion, and, of course, the quantity of indican in the urine is increased in cases of obstruction of the small intestine. Indican in the urine may also be due to the administration of certain drugs, such as creasote or turpentine. On oxidation indican readily splits up into indigo blue and potassium hydrogen sulphate. Urine containing indigo blue is always alkaline and usually in a state of decomposition. Black or dark urine may be due to several causes. In carboluria the urine is dark when passed or it becomes dark on exposure to air from the formation of hydroquinone. The colour is usually olive-green but may be smoky. Fuchsine, when administered in small doses, from one-half to one grain thrice daily, may also produce olive-green urine. In melanuria the urine is of the colour of *café-au-lait*. This condition occurs in malarial cachexia, in melanotic affections of the skin and liver, and after the ingestion of certain drugs, such as creasote and turpentine. On addition of nitric acid the urine becomes black from conversion of the chromogen of melanin into that substance. In hæmoglobinuria and hæmatoporphyrinuria the urine is of a port-wine colour. The latter condition occurs in sulphonal and trional poisoning. Excluding febrile urine loaded with urates and urine containing blood in quantity, red or purple urine may be due to the administration of a number of drugs. After taking the synthetic purgative "purgen" (dihydroxyl-phthalo-phenone) the urine is not coloured if acid but shows a deep crimson-red colour if alkaline. This colour is destroyed by acids and restored by alkalies. Purgatin (anthrapurpurin diacetate) colours the urine bright red. Pyoktanin or methyl-violet may impart its colour to the urine. Fuchsine, a derivative of aniline, produces a bright purple urine in doses of from one grain to three grains; in smaller doses, as already mentioned, the colour may be olive-green.

ACCIDENTS TO JOCKEYS.

WE have previously[1] drawn attention to the deficient care taken at many racecourses to insure prompt medical attention when accidents occur. A recent instance serves once more to emphasise the need of which we spoke. Accidents of one sort or another are almost necessarily of frequent occurrence at race meetings, and it seems to us a pity from every point of view that some adequate arrangement is not arrived at in every important racing centre between the authorities and the local medical profession. On the part of the latter, at any rate, we are certain that there would be every readiness to provide for the attendance of proper medical skill, so that the unfortunate victims of accident need incur no added danger from delay or from hurried, improvised, and ignorant assistance. The accidents that befall jockeys are often of just such a nature that their immediate skilled treatment plays an all-important part in determining the eventual favourable result. For often subsequent difficulties are met with and comparatively bad results obtained because the golden moments for proper treatment in the first instance were wasted through the non-appearance of the necessary surgical skill.

BACILLUS VIOLARIUS ACETONICUS: A NEW MICROBE PRODUCING ACETONE.

M. L. Bréaudat has described in the *Comptes Rendus* of June 5th, p. 1280, a new microbe which is capable of producing acetone at the expense of proteid matter. It is a chromogenic (violet) organism, colourless, oval in shape, and is readily stained by aniline colours though not by Gram's method. It was discovered in drinking water at

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[1] THE LANCET, April 15th, 1905, p. 1015.

Saigon in Cochin China. Its most important property consists in the power of producing acetone in a solution of peptone. It is a facultative aerobic organism, developing at temperatures between 30° and 37° C. and producing spores on about the sixth day. It liquefies gelatin, reduces nitrates to nitrites without disengagement of gas, and coagulates milk. It has received the name bacillus violarius acetonicus.

THE APOTHECARY'S SYMBOLS.

OF thousands of medical men who daily write prescriptions probably very few know the origin of the signs of the apothecaries' table as they are written. The ignorance is excusable, for these signs can only be traced in the tangle of the abbreviations and contractions of mediæval MSS. There were more than 5000 contractions of Latin words in use in France between the seventh and sixteenth centuries, and more than 1000 are found in official documents in England during the Tudor period alone; in comparison, Chinese is almost simple. On account of the costliness of writing materials and the labour of transcription abbreviations and contractions were a necessity. The Romans, with the direct boldness which was a characteristic of their race, simply left out whole syllables of words in inscriptions and writings, but the mediæval clerk had not this courage. He essayed a conventional code of expression for the most frequent syllables. The commonest syllable in mediæval Latin was the termination "us." This was abbreviated in early cursive MSS. into ψ̇ which is the long ſ with a flat U written over it. In the rapid writing of the commoner volumes this sign degenerated into the two dots representing the top and bottom of the ſ which left a sign similar to our colon (:); thus m: came to represent "mus" and b: to represent "bus." This kind of expression for a contracted syllable is known by palæographists as a "ligature" and other ligatures were in frequent use. For a long period the contraction symbol ; (our semicolon) was one of those standing for "et," the dot representing e and the comma standing for the slurred remains of the cursive t. This semicolon came gradually to be written ʒ, which we can readily see is only a hasty, careless method of writing a semicolon without raising the pen. And we must remember that to raise a reed pen in rapid writing risked a blot, and blots were not favourably received in mediæval scriptoria. For a long period again this ligature (ʒ or ;) was confined to words ending in que or et, as in qnʒ for *quandoque*, quʒ for *quoque*, āʒ for *apparet*, oʒ for *oportet*, l; for *licet*, tʒ for *tenet*, and s; for *scilicet*. Afterwards the symbol was generalised to signify the omission of any final syllable, so that oʒ came to mean *ounce* or *uncia*. When printed text arose the ʒ at once became a z to suit the convenience of a limited fount of type, but before this change became general the symbol oʒ had been slurred by hasty writing into ℥ and the lower weight of the drachma was derived from this as ʒ. The sign for the scruple ℈ is a "ligature" for sr, the long ſ being crossed by a cursive r.

THE COST OF VACCINATION.

OUR readers may remember that in the House of Commons on May 23rd Mr. John Johnson asked the President of the Local Government Board whether he had power by himself to reduce the fees paid to public vaccinators without having to appeal to Parliament or any other authority, and, if so, whether he would arrange for such reduction. Mr. Burns said in reply: "The Local Government Board is empowered in its own discretion to make rules and regulations with respect to the remuneration of public vaccinators. I am giving consideration to the regulations on this subject." We now understand that Mr. Burns has intimated that the regulations for the charges of vaccination will be dealt with by an order of the Local Government Board at some time in the autumn. This statement may foreshadow a reduction in the fees paid to public vaccinators, and those to whom such a reduction seems just should remember that the Vaccination Act of 1898 laid a large amount of extra work on the shoulders of these officials. The public vaccinator now has to visit the child's house and to perform the operation with special precautions. He has more clerical work to do than before and two or more statutory visits are required. Naturally, even under the minimum scale of fees, the cost of vaccination increased, and ever since the Act of 1898 came into force boards of guardians have been complaining all over the country of the great cost of vaccination. It may be that the system of vaccination in general will be transferred from the guardians of the poor to the public health authorities, but although some public vaccinators may earn their fees easily, others, especially in country districts, have to do an enormous amount of work for a very small fee, and may even be out of pocket through their vaccination work.

ELECTROLYTIC DISINFECTANT.

ATTENTION was first drawn to the peculiar nature of the powerful antiseptic action of partially electrolysed sea water in a series of bacteriological experiments made by THE LANCET Special Analytical Sanitary Commission in connexion with the Hermite process of sewage treatment by electricity which was tried on a small scale at Worthing in 1893.[1] It was shown that in the case of the bacillus typhosus the action of the electrolysed saline fluid was reduced to one half or less of its previous disinfecting power up to the first five or ten minutes of its operation, but, on the other hand, its efficiency seemed after this time to be not merely recovered in the stronger but even in the weaker solutions. It is probable, therefore, that the chlorine bodies formed some passing combination with the medium by which these substances acted as a carrier, so that the antiseptic was handed on again in an even more efficient form to the micro-organisms. A similar action takes place on adding the antiseptic to urine—that is to say, the antiseptic value tested in five minutes is reduced to about one-half on the addition of urine; but the antiseptic power which seems to have been lost, if it is given sufficient time to operate, is still available, as in 24 hours the solution with urine exerts the same influence as that without. It, in fact, seems more active. Samples of broth which had received comparatively small quantities of electrolysed saline solution even after several weeks contained a sufficient amount of available chlorine to be titrated in the form of iodine with arsenious acid or thiosulphate of soda. These experiments seem to us to account for the extraordinary disinfecting and deodorising power of electrolysed salt water. Putrid meat or fish offal, for example, is most effectually deodorised when immersed in the electrolysed fluid. There can be little doubt, however, that it is of the utmost importance that the electrolysed saline fluid should be permanent as regards its strength, as represented in terms of available chlorine. Unless attention is paid to certain details during the production of electrolytic fluid in the electrolysers, and to its treatment immediately after its output, the fluid will gradually lose its strength. Since describing the interesting installation at Poplar in THE LANCET of March 24th, 1906, p. 852, many improvements in a practical direction have been made, so that not only is an active antiseptic fluid turned out continuously and needing little attention, but one which keeps at a standard strength and is permanent. The solution used contains magnesium chloride and sodium chloride. Magnesium chloride used alone does not give satisfactory results, while it more readily furnishes active chlorine compounds than the sodium salt. The solution is made faintly alkaline with caustic soda so as to prevent the formation and escape of free chlorine in the cells. The electric current is governed automatically in order to give constant results and to avoid overheating. The stability of the newly electrolysed fluid is secured by the addition of a proper quantity of caustic soda. At the Poplar installation a paddle with rubber flaps is rotated in the fluid at the moment when it leaves the electrolysers, and it is intimately mixed with some caustic soda solution. The resulting solution shows no loss of strength. It is probable that this procedure results in the formation of a double hypochlorite of magnesium and sodium which, unlike the corresponding salt of magnesium, is quite stable. The process is extremely simple and the plant requires only a minimum of attention, the output of the disinfecting fluid, constant in strength, being perfectly regular and continuous. Mr. F. W. Alexander, the medical officer of health of the borough of Poplar, has devoted considerable energy and time to reducing the installation to a thoroughly practical concern, with the satisfactory result that the plant works with complete smoothness. It is capable of turning out an almost unlimited volume of efficient disinfectant by merely supplying a saline fluid and switching on the current. In time of epidemic such an installation should be invaluable.

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[1] THE LANCET, May 26th, 1894, p. 1321.

OFFICIAL DISBURSEMENTS OF COUNTY MEDICAL OFFICERS OF HEALTH.

FROM the extent of the area under his supervision a county medical officer of health may have to pay a considerable sum in the course of a year as travelling expenses, and the labour involved in official correspondence and the preparation of reports makes the assistance of a clerk almost indispensable. The details of petty finance involved in such matters, and in the general management of an office, can be easily shown in an account-book by anyone who has received a mercantile training, but to keep such books and to make cash in hand or overdrawn agree exactly with the balance of debit and credit columns is not proper employment for an official whose chief responsibility is connected with the limitation or prevention of infectious disease. There are, indeed, many able men to whom such minor duties are positively distasteful. An obvious solution of the difficulty is for the county council to allow the medical officer a definite sum in commutation of his expenses, based on the average of several recent years, and we are glad to learn that the Surrey county council has just taken this course in respect to Dr. Edward C. Seaton, who has been the county medical officer for over 15 years. In bringing the subject before the council preparatory to the consideration of it at the meeting held on July 31st Dr. Seaton mentioned among other details that the Income tax Commissioners had for a long time allowed a deduction of £85 from the amount of his salary prior to assessment. At the meeting of July 31st the council decided to commute Dr Seaton's necessary working expenses for an annual sum of £150, an arrangement which must be satisfactory to a busy man whose congenial subjects are sanitary science and epidemiology.

CONGENITAL ABNORMALITIES IN THE ABDOMEN.

MALFORMATIONS in the abdomen are not rare, and this is only what we should expect when we consider the large number of organs which it contains. Probably the most common of all is Meckel's diverticulum, but there are many other forms. In the "Mirror of Hospital Practice" in the present issue of THE LANCET we print an account of a case in which two abnormalities were found in the abdomen of a boy, five years old. A cyst was found attached to the pylorus, lying between the mucous and muscular coats and of a size sufficient to cause some obstruction. It contained some clear serous fluid. So far as we are aware cysts have not hitherto been described in this situation. The only suggestion we can make is that it may have been a barren hydatid cyst. In the same case was found an excessive development of a fold of peritoneum which has been called the "sacro-genital fold." It was so well marked as to be palpable per rectum. It does not appear, however, that it interfered definitely with the passage of fæces. Both of the conditions deserve to be put on record and their coincidence is remarkable.

HOMICIDE OR SUICIDE.

AN inquest held recently at Alford, Lincolnshire, respecting the death of a widow named Ann Powell, aged 69 years, recalls in certain measure two cases of death from mechanical violence followed by burning of the body which will always figure as *causes célèbres* in the annals of forensic medicine. Reference is here made to the Peasenhall and Norwich tragedies. The deceased woman, who lived alone, was undoubtedly the subject of delusional insanity. She was last seen alive about 10 P.M. on July 9th. At 9 A.M. on the following day smoke was seen issuing from her bedroom window. On the house being entered it was found that the furniture and other articles were scattered about in great confusion. A basket of clothes and some cooking utensils had been put outside the back door. The body was discovered in a sitting posture against the wall at the foot of the bed. A chopper with a hook, such as is used for cutting gorse, was found under her left thigh. The instrument was the property of the deceased. The only clothing on the body unconsumed by the fire was on the left arm, and that was burning. The day clothes were on the bed, and by the side of it there was a bloody skirt, and blood was on the pillow. A folding chair with blood on it was also on the bed. The bedstead at the foot was covered with blood. There was a piece of newspaper on a chair with blood and hair on it. The pictures had all been taken from the walls. A ladder by which there was access from the kitchen to the bedroom showed blood marks on the steps, as if made by naked feet. According to the police evidence the marks looked as though someone had been up and down the ladder. There was no proof that a robbery had been intended or committed. Mr. W. F. Dale, a surgeon at Alford, saw the body shortly after the discovery of the tragedy. He found the soles of the feet and palms of the hands covered with blood. There were no wounds on the hands or feet. He described the fatal injuries as follows: "At the back of the head there was a wound one and a half inches by two and a half inches and the scalp was pulped for about half an inch round. The skull was shattered and a portion driven into the brain in small pieces. There was a second wound one inch above and to the right of the other. There was a clot of blood between the scalp and the *left* frontal bone one and a half by one inch." The fracture of the skull at the site of the larger wound was the only injury of importance bearing on the question of homicide or suicide. The entire thickness of the bone had been cut in a slanting direction from below up and from left to right, beginning at the occipital protuberance. The divided surface of bone was coarsely grooved, showing that the blow had been delivered with a dull cutting instrument such as the chopper above referred to. Moreover, the upper end of the chopper exactly fitted the cleft of the bone. Either by reason of the bluntness of the instrument or by a wrenching action following on the initial blow the bone beyond was broken irregularly through. Mr. Dale was of opinion that there was no evidence of return foot-marks on the stairs, and the marks were not smeared at the edges. These facts are at variance with the deposition of the police officer. Mr. Dale calculated that death had taken place from one and a half to two hours before the discovery was made. If this be correct it seems clear that the deceased could not have placed herself in the position in which her body was found, because no great amount of clothing had been consumed. An accidental fall of an unconscious or semi-conscious person into the sitting posture is highly improbable, especially as the body retained the position. Again, although a large quantity of blood had been lost from the scalp wounds, there was only the mark of blood where the head rested against the wall. None had trickled down it. Judging from recorded cases we must concede the possibility of a person with head injuries such as the deceased had received setting herself on fire or even going up and down stairs. Opposed to the theory of murder are the following facts. No robbery had taken place; no person would benefit materially by the death; blood stains were absent from the doors and windows and floor of the front room; the age of the deceased negatived a common motive for murder; and the position of the house, situated between and adjoining other houses in the main street would not make a murderous attack safe. Against this collective evidence, which the coroner's jury deemed sufficient to justify a judgment of "Death from suicide," was there sufficient to warrant one of two alternatives—homicide or an open verdict? We are of opinion there was. Mr. Dale, supported by his colleague, Dr. Thomas Edward Sandall, was positive that the injury to the skull could not have been self-inflicted. We have had the opportunity of examining the bone and we feel constrained to endorse their opinion. Apart from the position of the injury, suggestive at least of homicide, we have the facts that the bone was cut through at the thickest part of the skull; that it was done by a very dull instrument, as shown by the grooving of the sectional surface; that very great force must have been used, such probably as a woman, 69 years of age, would find it difficult to exert; and lastly, the direction in which the blow was given, from below up and from right to left. The coroner referred to the medical evidence given in the Camberley case as bearing upon the elucidation of the facts before him. In that case, he said, the medical man, although stating that the wounds on Miss Hogg's body were strongly suggestive of homicide, was of opinion that the theory of suicide could not be excluded. The quotation was correct but if the nature, site, and direction of the wounds had also been borne in mind he would have at once seen there was no parallel between the two cases. By practically ignoring Mr. Dale's testimony the jury, in our opinion, put themselves in an unenviable position, for should further evidence arise pointing to a different verdict it would be seen that their finding had, to say the least, tended to discourage continued investigation. On highly technical matters jurors should admit that they are justified in accepting the judgment of those best qualified to speak with authority. Moreover, if such judgment should ultimately prove to be erroneous the jury would be absolved from the charge of hasty or ill-considered reasoning.

SANITATION IN BERMONDSEY.

AT the recent quarterly meeting of the Bermondsey Municipal Association a discussion took place as to the advisability of discontinuing the practice of burning the refuse of the district in view of the great cost of running the destructor. The sanitary advantages of the system of cremating refuse were strongly advocated by Alderman Wilkinson, who was, however, met by some extraordinary arguments from the chairman, Mr. Hugh Colin Smith. This gentleman appears to have proclaimed a belief that street refuse when accumulated was a desirable adjunct to a neighbourhood or, at all events, to have said that the sorting of it, usual when it is not burnt, was a healthy occupation, because 100 years ago "all the great physicians used to prescribe for the ladies of the West-end who suffered from weak lungs a course of visits to the dust heaps of London, to stand over them and breathe the effluvia, because the gases emitted from decaying vegetable matter strengthened the chest." Mr. Hugh Colin Smith, if he desires to revert to the medical and sanitary methods of 100 years ago in the conduct of his own household, is quite welcome to do so as long as he does not thereby bring himself into collision with the law. He will, however, hardly find them applicable to the somewhat augmented population and changed conditions of life observable in Bermondsey since the early part of the last century, and we should recommend him to leave anecdote alone and to concentrate his attention, and that of the association over which he presides, upon bringing about the working of the destructor in question more economically rather than upon doing away with it altogether. The dust heaps to which he referred would by now have grown to mountains of respectable size had their augmentation been allowed to continue, but they would hardly have taken the place of the Highlands or of the Alps as a touring ground for those in search of a healthy holiday.

Colonel Kenneth Macleod, I.M.S., LL.D., honorary physician to the King, will deliver the address at the opening of the winter session of the London School of Tropical Medicine on Oct. 8th, when the Duke of Marlborough, the President of the society, will occupy the chair.

MEDICINE AND THE LAW.

Disinfection of Infected Clothing.

THE question of the powers and duties of sanitary authorities in regard to articles which have been exposed to infection and also of the liability of authorities who have ordered such articles to be destroyed or disinfected is one of considerable importance. The statutory provisions as to the disinfection of clothing, bedding, &c., are to be found in Section 120 of the Public Health Act, 1875, and Sections 5 and 6 of the Infectious Diseases (Prevention) Act, 1890 (if such sections have been adopted for the particular district). The first paragraph of Section 120 provides that "where any local authority are of opinion upon the certificate of their medical officer of health or of any other legally qualified medical practitioner" that any house or articles therein should be infected, "it shall be the duty of such authority to give notice in writing to the owner or occupier" requiring him to disinfect. In each case the authority must exercise its discretion upon the consideration of the certificate and the notice to the owner or occupier must be given by the authority itself and not by an officer upon his own initiative. If an officer does give such a notice it would seem that the authority cannot ratify it and that it will not support a summons for non-compliance (see St. Leonard's, Shoreditch, v. Holmes, 50 J.P. 132). In practice the result is most inconvenient and calculated to defeat the whole object of the section, for in cases of infection immediate action is necessary, yet nothing can be done until the next meeting of the authority. The last paragraph of the section provides that where the owner or occupier is "unable in the opinion of the local authority to carry out the requirements of this section such authority may, without enforcing such requirements on such owner or occupier, with his consent, cleanse and disinfect such house or part thereof or articles, and defray the expenses thereof." Upon this paragraph a question arises as to whether or not a previous notice in writing (based upon a certificate) is necessary; at the time the point is immaterial, for if an officer of the council in fact obtains the owner's consent, the clothing will be disinfected; but should injury be done to the clothing in the process of disinfection, as must frequently be the case, the answer to this question may have an important bearing upon the right of the owner to recover compensation in respect of such injury. The case of Foster *v.* East Westmorland Rural District Council (68 J. P. 103) was one which raised a point of some interest as to the liability of a sanitary authority under Section 120 of the Public Health Act, 1875, in respect of articles damaged and destroyed by its officers in the process of disinfection. The plaintiff brought his action upon an award for £25 0*s.* 8*d.*, and the case was (by consent) argued upon a statement of facts found for the purpose by the umpire. It appeared that on Jan. 15th small-pox broke out in the plaintiff's house at B., and his medical attendant duly notified the fact. Thereupon the sanitary inspector went to the house and the question of disinfecting and destroying clothes, &c., was discussed between him and the plaintiff, the latter saying that he should expect compensation. Under the advice of the medical officer of health the patients were removed to the hospital, and on Jan. 20th the inspector's deputy attended and disinfected some articles and destroyed others, carrying out the work in accordance with written instructions previously given to him by the medical officer of health who had visited the house. Some of the articles so disinfected were damaged but it was not suggested that the damage was otherwise than unavoidable. The medical officer of health had given no certificate under Section 120 nor had any written notice been served upon the plaintiff under that section, but it was found as a fact that such notice would have been served had the plaintiff objected to the disinfection and destruction, but that he agreed because he thought he would be compensated. In addition to the articles above referred to other articles, the property of the plaintiff at O., were destroyed without his consent or knowledge. The umpire awarded £1 10*s.* for articles damaged in disinfection; £4 10*s.* for articles destroyed at B.; £9 for articles destroyed at O.; £5 5*s.* costs of arbitration; and £4 15*s.* 8*d* costs of award. This award was affirmed by the county-court judge, who held that where the authority itself disinfects with the owner's consent no previous notice in writing is necessary; that the medical officer was therefore carrying out the provisions of the statute; and that as the authority had adopted, or, at least, not disavowed, his acts, it must pay compensation. The practical difficulty in the efficient working of Section 120 of the Act of 1875, which has been referred to, is remedied by Section 5 of the Infectious Diseases (Prevention) Act, 1890, and wherever that section is adopted it supersedes Section 120. Under this section it is no longer necessary for the authority to consider any particular case; as soon as the necessary certificate is given the clerk must act upon it by serving the required notice. The section enacts as follows:—"(1) Where the medical officer of health of any local authority, or any other registered medical practitioner, certifies that the cleansing and disinfecting of any house, or part thereof, and of any articles therein likely to retain infection, would tend to prevent or check infectious disease, the clerk to the local authority shall give notice in writing to the owner or occupier of such house or part thereof that the same and any such articles therein will be cleansed and disinfected by the local authority at the cost of such owner or occupier unless he informs the local authority within 24 hours from the receipt of the notice that he will cleanse and disinfect the house or part thereof and any such articles therein to the satisfaction of the medical officer of health within a time fixed in the notice. (2) If within 24 hours from the receipt of the notice the person to whom the notice is given does not inform the local authority, or if, having so informed the local authority, he fails to have the house or part thereof and any such articles disinfected within the time fixed in the notice, the house or part thereof and articles shall be cleansed and disinfected by the officers of the local authority under the superintendence of the medical officer of health, and the expenses incurred may be recovered from the owner or occupier in a summary manner. (3) Provided that where the owner or occupier of any such house or part thereof is unable, in the opinion of the local authority or of their medical officer of health, effectually to cleanse and disinfect such house or part thereof and any articles therein likely to retain infection, the same may without any such notice being given, but with the consent of such owner or occupier, be cleansed and disinfected by the officers of, and at the cost of, the local authority." It will be noticed that in this clause the medical officer of health is expressly empowered to judge of the owner's ability to disinfect property. Section 6 also intrusts further discretion to the medical officer and allows him (if armed with a general authority to that effect) to require bedding, &c., to be handed over for disinfection at the cost of the authority. The Act of 1890 contains no general compensation clause and is not directed to be read as one with the Public Health Act, 1875. It seems, therefore, that if articles are damaged whilst being disinfected by the authority under Section 5 no compensation will be payable in respect of unavoidable damage and the remedy for unnecessary damage will be an action for negligence. Where, however, they are removed for disinfection under Section 6 it is expressly provided that compensation is to be paid in respect of unnecessary damage, the amount being settled by a court of summary jurisdiction. In Garlick *v.* Knottingley Urban District Council (68 J. P. 494) it was held that where articles which have been exposed to infection from any dangerous infectious disorder were destroyed by an inspector of nuisances acting on the order of the medical officer of health without express direction from, or ratification by, the urban authority, the owner of the articles has no claim for compensation against the urban authority under Sections 121 or 308 of the Act of 1875. The only provision under which an authority can destroy infected bedding or clothing is contained in Section 121 of the Act of 1875. The section does not require any certificate or notice, but merely says that the "authority may direct the destruction of bedding, clothing," &c. The result is that in the event of an outbreak of serious infectious disorder a medical officer is placed in a very difficult position; if, in the exercise of his own discretion, he orders the destruction of infected bedding he may find the authority refuse to approve his act, in which case he may be liable to an action for trespass, whilst if he must wait until the next meeting much mischief may be done. It is desirable, therefore, that a medical officer should obtain a general authority to direct the destruction of infected articles, at any rate in cases of serious illness such as small-pox.

"*Refreshing the Memory*" *in Court.*

The extent to which notes may be read by a witness under examination in a court of law with a view to refreshing his memory was raised lately and in a somewhat novel manner in the case of Holden *v.* the Prudential Life Insurance Company of America. A medical man was called as a witness. He stated that although he had examined the deceased man some years previously and in fact had in his hand a note taken at the time of that examination he had quite forgotten the patient and his particular circumstances. The testimony of this witness was objected to, an objection which the court of first instance allowed; on appeal, however, the Supreme Judicial Court of Massachusetts held that the medical witness should have been permitted to refresh his memory as to the facts of the case in question. This case must be compared with the decision in the Supreme Court of New York in 1904, that a nurse could not produce a clinical chart, regularly filled in, to prove the physical condition of a patient formerly under her care. It may be stated generally that it is far preferable for a witness to get up his evidence thoroughly before he submits to a public examination, and not to refer to notes during that ordeal; there is always a suspicion, when reading from alleged records, that the other side is employing a potent fallacy common to every species of real evidence; thus the witness seems to say: "This fact must be true. Here's my note. I made it at the time." Before contemporary records are allowed by a judge, and admitted to aid the memory of a medical witness, certain conditions must be fulfilled. The private note or memorandum which it is proposed to read must be sworn to be the original record and not a clean copy made for the purpose of the present examination in court; it must have been made contemporaneously with the event to which it refers and by the witness himself as soon after the clinical or post-mortem examination as possible; its reception rests with the presiding judge to allow or disallow. The notes quoted are open to the inspection of the court; since 1824 they have to this extent been a sort of exhibit. Only so much of the note as the witness refers to, however, can be inspected and commented upon by the court. Mr. Gladstone used to say: "The best memory is a record made at the time," and it behoves all medical men who may willy-nilly have to give medico-legal evidence to have at hand a full note as to what was discovered or advised when an examination was made of a person who figures later as a litigant, either personally or by his representatives.

Sketching Witnesses in Court.

The announcement has been made that in the Probate, Admiralty, and Divorce Division the practice of making drawings of witnesses, which afterwards figure as illustrations to newspaper reports of the trial, must be discontinued. The order of Sir John Gorell Barnes will be welcomed by none more than by medical witnesses, who come into court as a rule unwillingly and can feel nothing but annoyance at seeing ridiculous travesties of their features figuring often in very objectionable company, and usually in connexion with cases the unpleasant characteristics of which constitute their principal claim to public attention. The present regulation is confined to the division named, but it may set an example to be followed elsewhere. That it is needed is shown by the wide circulation which has been given to statements that in the court where the inquiry was held into the mental condition of the Marquis Townshend an artist actually *set up a canvas* with a view to the production of a large painting of the scene, that cameras were used, and that the paint brush as well as the pencil was employed in more than one instance. After this we might expect before long a pause in the hearing of a trial in a badly lighted court for the taking of a flash light picture such as we are familiar with at public dinners. The making of these sketches is an innovation which has arisen and increased with the modern craze for publicity in private matters and with the misguided enterprise of certain journalism; but those whose memories go back but a little way can recall how the late Mr. Justice Denman, a most dignified judge, and one with strong views on the decencies of life, forbade an artist to draw a witness in a *cause célèbre* arising out of the theft of a pearl. Many portraits of witnesses and accused persons have been drawn since then, and in many instances the mere fact of being sketched as well as stared at in a crowded court must have added to the discomfort and hardship endured by an unwilling victim. There is only this to be said for the practice—that the publication of the portraits of witnesses or of persons charged with offences may sometimes lead to results beneficial to the cause of justice by making their identity more easily recognised than would the mere publication of names which are possibly assumed. Against this must be set the badness of the likenesses which must render such desirable recognition of even less frequent occurrence than it would be otherwise, and also the distress and annoyance caused in the majority of cases without any possibility of compensating advantage. To members of the medical profession called as witnesses the annoyance must always be considerable, and, as we have observed, they will welcome the prohibition.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 16th, 1828.

POISONING BY PRUSSIC ACID.

The attention of the public in this country has recently been directed to the subject of poisoning by Prussic Acid, in consequence of the suicide of a condemned felon, by this means; and, in France, at the present moment there is much excitation on the same subject, from the occurrence of a most lamentable catastrophe in one of the public hospitals; no less than SEVEN patients having been poisoned by the incautious use of it. .... The account which has reached us, respecting the death of seven patients by prussic acid, in one of the French hospitals, (*Bicêtre*), is as follows:—M. Ferrus, one of the physicians, was in the habit of employing prussic acid in cases of epilepsy; and the formula which he used was that of Magendie, under the title of syrup of hydrocyanic acid, consisting of one part of medicinal prussic acid to 128 of syrup. In private practice, the medicine had always been procured at the shop of M. Pelletier, and an ounce was usually prescribed for a dose. M. Ferrus, wishing to try the medicine in the hospital, ordered it in the dose of an ounce to fourteen epileptic patients. The house surgeon represented to M. Ferrus, that drachm doses only were given, and that these occasionally produced unpleasant symptoms. This induced M. Ferrus to prescribe half an ounce, although he had, as before stated, usually directed half an ounce to his patients in private practice. The medicine was procured from the *Pharmacien Centrale des Hopitaux*, where the syrup is prepared according to the *Codex*, or French Pharmacopœia, which is, one part of prussic acid to nine parts of syrup. The Infirmary man commenced the exhibition on the 14 epileptics; by the time he had given it to the seventh the first was dead, and the others expired in the course of twenty minutes. Magendie uses the acid prepared according to the formula of Gay-Lussac; he adds six times its volume, or 8·5 times its weight of distilled water, and he then designated it medicinal prussic acid. The acid directed in the French Pharmacopœia, is prepared according to the process of Scheele, which, in the opinion of Magendie, is exceedingly uncertain in its results. The formula of Gay-Lussac, or of Vauquelin, should always be followed. Mr. Garden, of Oxford Street, prepares it according to Vauquelin; it is made at Apothecaries' Hall by Scheele's process.

HARDENING OF STEEL BY A CURRENT OF COMPRESSED AIR.

From the observation of travellers, that the manufacture of Damascus blades was carried on only during the time when north winds occurred, M. Anozoff made experiments on the hardening of steel instruments by putting them, when heated, into a powerful current of air, instead of quenching them in water. From the experiments already made, he expects ultimate success. He finds that, for very sharp-edged instruments, this method is much better than the ordinary one; that the colder the air and the more rapid the stream, the greater is the effect. The effect varies with the thickness of the mass to be hardened. The method succeeds well with case-hardened goods.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Liverpool.—The history of the sanitary advancement of the city of Liverpool is one of the most interesting in existence and the short account which Dr. E. W. Hope furnishes in his current annual report of the sanitary condition of Liverpool in the earlier part of the nineteenth century is one which must make the present citizens on the banks of the Mersey thankful that they were born a generation or more later. In 1841 the population of Liverpool was 223,000 (it is now 733,714) and of this number some 160,000 belonged to the working classes. Of these latter more than a third lived in courts and cellars, the courts being connected with the street by a passage or archway about three feet wide. The houses themselves were back to back and side to side, having no yards or open spaces at the sides or rear. As regards the cellars they were from 10 to 12 feet square, generally flagged but frequently having only the bare earth for a floor, the cellars being sometimes less than six feet in height. There was frequently no window, so that light and air could gain access to the cellar only by the door, the top of which was often no higher than the level of the street; consequently the cellars were dark and ventilation was out of the question. There was sometimes a back cellar used as a sleeping compartment and having no direct communication with the external atmosphere, deriving its scanty supply of light and air solely from the door of the front apartment. A population of over 20,000 inhabited these cellars and the whole of this population was without out-offices or places of deposit for their refuse matter. Speaking of the lodging-houses, Dr. Hope tells us, apparently on the authority of Dr. Duncan, who was health officer of the city for so many years, that in every room except the kitchen and common rooms the floor was covered with bedsteads, each of which received at night as many human beings as could be crowded into it, and this, too, often without distinction of sex or regard to decency. As to the cellars, Dr. Duncan himself said: "The floor of these cellars, often the bare earth, is covered with straw, and there the lodgers, all who can afford to pay 1*d.* for the accommodation, range themselves as best they may until scarcely a single available inch of space is left unoccupied."

The water-supply in 1845 was such that fires were frequently uncontrolled and the two water companies charged arrears due from a former tenant to the new one. "Large numbers of courts were destitute of water, the supply having been cut off for non-payment, and the inhabitants had no other water to use from year's end to year's end except what they begged or stole from their neighbours." Under these conditions we are but little surprised to read of fights and squabbles among the people in their efforts to get their vessels filled with water. From a report of Mr. Riddall Wood who investigated the state of education in the Liverpool of this time, it appears that the schools were dark and confined, damp and dirty and used as dwelling and dormitory by the teacher's family. 40 of these were cellars. Under these conditions typhus fever thrived and 1 person in 25 of the working-class population was annually attacked by this disease. And before the Liverpool Sanitary Act of 1846 had been brought into effective operation there came the potato famine of Ireland and by June, 1847, some 300,000 destitute Irish emigrants had landed in Liverpool. Many of these were transmigrants but some 80,000 filed into the lodging-houses and forced their way into cellars which had been closed under the Health Act of 1842. Typhus fever prevailed and ere long "the epidemic burst through the barrier which had hitherto seemed to confine it to the poorer classes of the inhabitants. …… In one street, Lace-street, no less than 472 persons died from it and other causes during the year, being one-third of the entire population of the street." In 1849 cholera was introduced by emigrants, and in the course of that year 7000 deaths were ascribed to it and allied diseases. Dr. Hope, in describing the introduction of cholera by emigrants in 1866, quotes from Dr. Trench a vivid description of an Irish wake over the body of a woman dead from cholera. Dr. Trench was unable to procure speedy burial and after detailing the wake he adds: "There had been in the presence of death one of those shameful carousals which, to the disgrace of the enlightened progress and advanced civilisation of the nineteenth century, still linger as dregs of ancient manners among funeral customs. It was a rash challenge to the dreaded pestilence; and how and with what fearful results accepted the mortality returns of the next four months will too clearly show. Suffice it now to mention that before the period of a week had passed John Boyle, the husband of the woman, was also among the dead, and before the end of July 48 persons had died from cholera within a radius of 150 yards from the court which had been the scene of the ill-timed revelry." This writing of Dr. Trench reminds us rather of the pen of Sir John Simon, and the whole of Dr. Hope's retrospect makes admirable reading. It is indeed regrettable that there is no more of it and we would suggest its expansion with copious footnotes and references and its publication as a separate volume. It would serve to awaken the public to the change which sanitary science has wrought, not only in Liverpool but elsewhere.

The City of Birmingham.—In his current annual report Dr. John Robertson speaks well of the drinking water recently introduced into Birmingham from Rhyader in Wales. The water is still somewhat peaty at times but this drawback is gradually diminishing; in reaction the water is not acid but faintly alkaline, and its action on lead pipes only manifests itself when the water is allowed to remain in a new lead pipe overnight. In order to prevent the kettles used for the water from rusting certain manufacturers galvanised both the inside and outside of such kettles which were sold as "Welsh water kettles." It was discovered, however, that now and again as much as from five to eight grains of zinc per gallon were found in the water, a circumstance which rendered the water quite turbid. It was ascertained, too, that some of the cheaper kettles were lined with a mixture of tin and lead instead of with pure tin, and obviously illness from lead poisoning might result. The voluntary notification of pulmonary tuberculosis was introduced into Birmingham early in 1905, the notifications to be treated as confidential and the usual fees to be paid. Only such cases as are regarded as being in an infectious condition are to be notified and arrangements have been made for the gratuitous examination of sputum at the bacteriological laboratory of the University. Dr. Robertson points out that the cases which most require attention from the sanitary authority are those which occur among the more careless and ignorant of the population, and he thinks that among the middle and upper classes such notifications are not necessary, owing to the fact that the majority of the patients in these classes already receive the necessary instruction.

Willesdon Urban District Council.—Dr. William Butler furnishes a table in his annual report for 1905 giving the results of the examination of the eyesight of 11,838 scholars attending the public elementary schools in Willesden. The vision was tested by the teachers under a scheme embodied in the regulations of the education committee. Among the boys 48·6 per cent. only had normal vision, 40·9 per cent. slightly defective vision, and 10·5 per cent. seriously defective vision. Among the girls 34·5 per cent. had normal vision, 49·3 slightly defective vision, and 16·2 per cent. seriously defective vision. Dr. Butler, referring to the above results, observes that "there is some evidence that a public conscience is being created as to the importance of attending to the vision of the children."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8988 births and 4188 deaths were registered during the week ending August 4th. The annual rate of mortality in these towns, which had been equal to 12·0 and 12·6 per 1000 in the two preceding weeks, further rose to 13·8 per 1000 in the week under notice. During the first five weeks of the quarter the death-rate in these towns has averaged 12·5 per 1000, the rate during the same period being 12·3 in London The lowest death-rates in the 76 towns were 3·0 in West Bromwich, 4·2 in Hornsey, 7·6 in East Ham, 7·9 in Burton-on-Trent, 8·0 in Willesden, 8·1 in Wallasey, and 8·3 in Tottenham; the highest rates were 19·0 in Newport (Mon.), 19·7 in South Shields, 19·8 in Stockton-on-Tees, 20·3 in Rochdale, 20·5 in Wigan, 21·2 in Coventry, 21·4 in Huddersfield, and 26·9 in Bootle. The 4188 deaths in the 76 towns showed an increase of 375 on the number in the previous week, and included 753 which were referred to the principal epidemic diseases, against 361, 424, and 486 in the three preceding weeks; of these 492 resulted from diarrhœa, 108 from measles, 59 from whooping-cough, 43 from diphtheria, 31 from scarlet fever, and 20 from "fever" (principally enteric), but not any from small-pox. The deaths from these principal epidemic diseases were equal to an annual rate of 2·5 per 1000 in the 76 towns and to 2·6 per 1000 in London. No death from any of these epidemic diseases was registered in Hornsey, Bournemouth, Southampton, Ipswich, Burton-on-Trent, Handsworth, West Bromwich, Grimsby, Wallasey, Warrington, Barrow-in-Furness, Halifax, and Middlesbrough; while they caused death-rates of over 5·0 per 1000 in Leyton, Aston Manor, Bootle, and Huddersfield. The highest death-rates from measles occurred in Salford, Burnley, and Huddersfield; from whooping-cough in Portsmouth, Birkenhead, and Newport (Mon.); and from diarrhœa in West Ham, Leyton, Walsall, Aston Manor, Birkenhead, Bootle, Wigan, Leeds, and Merthyr Tydfil. Diphtheria caused ten deaths in London, four in Liverpool, and two each in Portsmouth, Bristol, Derby, and Hull; scarlet fever caused six deaths in London, five in Sheffield, two in Hanley (Staff.), two in Aston Manor, and two in Manchester; while of the 20 deaths referred to "fever," four belonged to London, two to West Ham, and two to Nottingham. One case of small-pox remained under treatment in the Metropolitan Asylums hospitals on August 4th against numbers declining from 13 to one at the end of the six preceding weeks; no new cases have been admitted during the past six weeks. The number of scarlet fever cases, which had been continuously rising from 2225 to 3048 on the 15 preceding Saturdays, had further risen to 3120. 415 new cases were admitted during the week, against 406, 413, and 408 in the three previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 119, 133, and 101 in the three preceding weeks, rose to 111, and were eight below the corrected average in the corresponding week of the four preceding years 1902–05. The causes of 43, or 1·0 per cent., of the deaths registered in the 76 towns during the week under notice were not certified either by a registered medical practitioner or by a coroner. In 54 of the 76 towns, including West Ham, Bristol, Leicester, Hull, and Newcastle-on-Tyne, no uncertified death was registered; there were six in Birmingham, five in Liverpool and in South Shields, four in London, two each in Nottingham, St. Helens, Salford, Leeds, and Sunderland, and one each in 13 other towns.

In 76 of the largest English towns 7361 births and 4424 deaths were registered during the week ending August 11th. The annual rate of mortality in these towns, which had slowly but steadily increased in the four preceding weeks from 11·7 to 13·8 per 1000, further rose to 14·8 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns has not averaged more than 12·8 per 1000, the rate during the same period being 12·7 in London. The lowest death-rates in the 76 towns last week were 5·6 in Newport (Mon.), 5·9 in Reading, 6·5 in Handsworth and in Wallasey, and 6·6 in Hornsey; the highest death-rates were 20·6 in St. Helens, 21·2 in Salford, 22 0 in Hanley, and 23·0 in West Ham. The 4424 deaths in the 76 towns showed a further increase of 236 upon the low numbers returned in recent weeks, and included 1105 which were referred to the principal epidemic diseases, against numbers increasing from 361 to 753 in the four preceding weeks; of these, 865 resulted from diarrhœa, 103 from measles, 50 from whooping-cough, 39 from diphtheria, 27 from scarlet fever, 20 from "fever" (principally enteric) and one from small-pox. The deaths from these principal epidemic diseases were equal to an annual rate of 3 6 per 1000 in the 76 towns and to 3·9 in London. No death from any of these epidemic diseases was registered last week in Bournemouth, Tynemouth, Ipswich, Burton-upon-Trent, or King's Norton; while they caused death-rates exceeding 6·0 per 1000 in Salford, Wigan, Norwich, Nottingham, Aston Manor, Birkenhead, and West Ham. The deaths referred to diarrhœa, which had steadily increased in the nine preceding weeks from 50 to 492, further rose last week to 865; the highest annual rates from this disease last week were 5·1 in St. Helens, 6·0 in Wigan, 6·2 in Birkenhead, 6·6 in Nottingham, 7·6 in Aston Manor, and 10·2 in West Ham. The largest proportional fatality of measles occurred in Norwich, Huddersfield, South Shields, Burnley, and Salford; and from whooping cough in Middlesbrough and Birkenhead. Scarlet fever caused ten deaths in London, four in Sheffield, and two in Hanley; and diphtheria 13 in London, three in Salford, and three in Hull. Of the 20 deaths referred to "fever" five were returned in London, three in Liverpool, two in Bradford, and two in Leeds. The fatal case of small-pox occurred in Liverpool. No case of small-pox remained under treatment in the Metropolitan Asylums hospitals on August 11th, against numbers declining from 13 to one at the end of the seven preceding weeks; no new case has been admitted in these hospitals since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever Hospital, which had increased in the 16 preceding weeks from 2225 to 3120, had declined to 3051 on Saturday, August 11th; 308 new cases were admitted during the week under notice, against 413, 408, and 415 in the three preceding weeks. The deaths referred to pneumonia and other diseases of the respiratory organs in London, which had been 133, 101, and 111 in the three preceding weeks, were last week 112, and were 12 below the corrected average in the corresponding week of the four preceding years, 1902–05. The causes of 43, or rather less than 1 per cent., of the deaths registered in the 76 towns during the week under notice were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in 59 of the 76 large towns, including Manchester, Bradford, Leeds, and Newcastle-upon-Tyne; the proportion of uncertified causes of death showed, however, a considerable excess in Liverpool, Sheffield, Preston, Gateshead, Blackburn, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 14·3, 13·7, and 14·3 per 1000 in the three preceding weeks, decreased to 11·8 in the week ending August 4th, and was 2·0 per 1000 below the rate in the preceding week in the 76 large English towns. The rates in the eight Scotch towns ranged from 7·2 in Paisley and 8·2 in Leith to 15·1 in Perth and 15·5 in Dundee. The 405 deaths in the eight towns showed a decrease of 84 on the number in the previous week, and included 25 which were referred to diarrhœa, 11 to whooping-cough, eight to measles, four to "fever," one to scarlet fever, and one to diphtheria, but not any to small-pox. In all, 50 deaths resulted from these principal epidemic diseases in the week under notice, against 40 and 55 in the two preceding weeks; they were equal to an annual rate of 1·5 per 1000, which was 1·0 per 1000 below the rate from the same diseases in the 76 large English towns. The deaths attributed to diarrhœa in the Scotch towns, which had been 11 and 23 in the two preceding weeks, further rose to 25, of which 18 occurred in Glasgow, four in Edinburgh, and two in Dundee. The 11 fatal cases of whooping-cough agreed with the number in the previous week, and included seven in Glasgow and two in Aberdeen. The eight deaths referred to measles, which had been 12, seven, and six in the three preceding weeks, included five in Edinburgh and three in Glasgow. The four fatal cases of "fever" included two of cerebro-spinal fever, both of which were registered in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 59, 66, and 52 in the three preceding weeks, rose again to 61, and were 13 above the number in the corresponding period of last year. The causes of seven, or 1·7 per cent., of the deaths registered in the eight towns in the week under notice were not certified, the proportion in the 76 large English towns during the same week being only 1·0 per cent.

The annual rate of mortality in eight of the principal Scotch towns, which had been 13·7, 14·3, and 11·8 per 1000 in the three preceding weeks, rose again to 14·0 during the week ending August 11th and was 0·6 below the mean rate in the same week in the 76 English towns. The rates in the eight Scotch towns ranged from 10·2 and 11·4 in Paisley and Leith to 15·2 in Glasgow and in Dundee and 18·1 in Perth. The 481 deaths in the eight towns exceeded the number in the previous week by 76 and included 34 which were referred to diarrhœa, 11 to measles, eight to whooping-cough, six to "fever," three to diphtheria, and one each to scarlet fever and chicken-pox. In all 64 deaths resulted from these principal epidemic diseases in the week under notice, against 55 and 50 in the two preceding weeks; they were equal to an annual rate of 1·9 per 1000, which was 1·7 below the rate from the same diseases in the 76 large English towns. The deaths attributed to diarrhœa in the Scotch towns, which had been 11, 23, and 25 in the three preceding weeks, further rose last week to 34, of which 18 occurred in Glasgow, four in Dundee, three in Greenock, and two each in Edinburgh, Leith, and Aberdeen. Of the 11 fatal cases of measles, five occurred in Glasgow and five in Edinburgh; and six of the eight deaths from whooping-cough were returned in Glasgow. The six deaths referred to "fever" included five in Glasgow, all of which were certified as resulting from cerebro-spinal meningitis. Two of the three fatal cases of diphtheria, and the death from chicken-pox were also recorded in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 52 and 61 in the two preceding weeks, further rose to 68, and exceeded by 35 the low number returned in the corresponding week of last year. The causes of four, or rather less than 1 per cent., of the deaths registered during the week were not certified, corresponding with the proportion of uncertified causes of death during the same week in the 76 large English towns; all the four uncertified deaths were returned in Glasgow.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 20·9 and 20·1 in the two preceding weeks, declined further to 16·8 per 1000 during the week ending August 4th. During the five weeks of the present quarter the death-rate has averaged 18·7 per 1000, the rates during the same period being 12·3 in London and 12·7 in Edinburgh. The 122 deaths of Dublin residents during the week under notice showed a decrease of 24 from the number in the preceding week, and included 11 which were referred to diarrhœa, two to whooping-cough, and one to "fever," but not any to small-pox, measles, scarlet fever, or diphtheria. These 14 deaths from the principal epidemic diseases showed a slight decline from the numbers in the preceding week and were equal to an annual rate of 1·9 per 1000, the death-rate from the same diseases being 2·6 in London and 1·8 in Edinburgh. The 11 fatal cases of diarrhœa were one in excess of the number in the previous week. The 122 deaths from all causes in Dublin included 28 of children under one year

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1906.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1906.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON...	4,721,217	—	1688	630	—	98	2	25	344	—	2787	7·7	—	126	41	41	60	—	24	1	89	482	1·3	4079	11·3	86
West Districts.																										
Paddington	148,913	—	52	16	-	—	—	1	13	—	82	7·2	—	2	—	1	—	—	—	—	6	9	0·8	96	8·4	48
Kensington	180,962	—	43	20	—	2	—	1	10	—	76	5·5	—	13	1	2	3	—	—	—	4	23	1·7	168	12·1	121
Hammersmith	120,679	—	47	28	—	1	—	—	7	—	83	9·0	—	1	—	3	2	—	—	—	8	14	1·5	98	10·6	100
Fulham	161,965	—	57	30	—	4	—	2	7	—	100	8·0	—	6	—	—	1	—	1	—	9	17	1·4	108	8·7	77
Chelsea	74,672	—	24	7		1	—	1	6	—	39	6·8	—	3	—	—	—	—	—	—	—	3	0·5	50	8·7	70
City of Westminster	173,905	—	43	21		5	1	—	6	—	76	5·7	—	3	—	2	2	—	2	—	3	12	0·9	135	10·1	99
North Districts.																										
St. Marylebone	128,580	—	31	15	—	1	—	1	10	—	68	5·9	—	11	1	2	1	—	—	—	7	22	2·2	143	14·5	97
Hampstead	89,633	—	69	5	—	1	—	—	5	—	80	11·6	—	2	2	1	—	—	1	—	1	7	1·0	57	8·3	29
St. Pancras	238,455	—	76	23	—	4	—	1	22	—	126	6·9	—	7	3	—	3	—	—	—	5	18	1·0	220	12·1	76
Islington	344,987	—	108	40		15	—	1	12	—	176	6·7	—	8	1	3	8	—	3	—	13	36	1·4	284	10·7	74
Stoke Newington	53,217	—	11	3		—	—		2	—	16	3·9	—	2	—	—	—	—	—	—	1	3	0·7	33	8·1	73
Hackney	230,721	—	60	23	—	4	1	1	19	—	113	6·4	—	3	3	1	1	—	1	—	11	20	1·1	165	9·3	89
Central Districts.																										
Holborn	55,805	—	12	3		3	—	-	3	—	21	4·9	—	4	—	—	—	—	—	—	—	4	0·9	59	13·8	70
Finsbury	97,466	—	45	18	-	2	—	1	6	—	72	9·6	—	6	1	3	4	—	1	—	4	19	2·5	135	18·1	113
City of London	21,367	—	15	2	-	-	—	-	2	—	19	11·6	—	1	—	—	—	—	—	—	2	3	1·8	23	14·0	111
East Districts.																										
Shoreditch	116,108	—	71	10	-	1	—	—	8	—	90	10·1	—	4	2	—	1	—	—	—	7	14	1·6	109	12·3	106
Bethnal Green	130,669	—	64	31	-	3	—	2	28	—	128	12·8	—	3	—	1	1	—	1	—	8	14	1·4	128	12·8	90
Stepney	307,176	—	95	62	—	6	—	1	25	—	188	8·0	—	4	5	4	4	—	—	—	23	40	1·7	295	12·5	85
Poplar	170,873	—	33	28		8	—	—	16	—	85	6·5	—	18	-	1	—	—	1	—	8	28	2·1	173	13·2	105
South Districts.																										
Southwark	209,143	—	165	25		7	—	—	28	—	225	14·0	—	5	8	2	1	—	1	—	13	30	1·9	220	14·3	112
Bermondsey	128,629	—	52	26	—	1	—	1	12	—	92	9·3	—	6	—	2	3	—	—	—	9	20	2·0	168	17·0	126
Lambeth	315,774	—	92	37	—	5	—	3	14	—	151	6·2	—	1	1	2	3	—	6	1	15	29	1·2	257	10·6	79
Battersea	179,622	—	68	14	—	2	—	2	8	—	94	6·8	—	9	3	3	7	—	—	—	6	28	2·0	149	10·8	62
Wandsworth	273,381	—	75	33	—	8	—	2	20	—	138	6·6	—	3	—	1	8	—	2	—	7	21	1·0	214	10·2	97
Camberwell	274,132	—	78	28	—	5	—	1	23	—	135	6·4	—	—	4	2	2	—	4	—	4	16	0·6	228	10·8	89
Deptford	115,495	—	55	23	—	1	—	2	16	—	97	10·9	—	1	—	4	1	—	—	—	7	13	1·5	85	9·6	66
Greenwich	105,350	—	52	23	—	4	—	1	6	—	86	10·6	—	—	2	—	1	—	—	—	3	6	0·7	81	10·0	69
Lewisham	148,463	—	51	18	—	3	—	—	5	—	77	6·8	—	—	3	1	2	—	—	—	3	9	0·8	93	8·2	32
Woolwich	127,345	—	44	13	—	1	—	—	4	—	62	6·3	—	—	1	—	1	—	—	—	2	4	0·4	95	9·7	52
Port of London	—	—	—	-	—	1	—	-	1	—	2	—	—	—	-	—	-	—	—	—	—	—	—	—	—	—

* Including membranous croup

of age and 36 of persons aged 60 years and upwards; both these numbers showed a considerable increase on those returned in the previous week. Four inquest cases and two deaths from violence were registered; and 48, or 39 per cent., of the deaths occurred in public institutions. The causes of three, or 2·5 per cent., of the 122 deaths were not certified either by a registered medical practitioner or by a coroner, the proportion of uncertified deaths in London being 0·3 per cent. and in Edinburgh 1·4 per cent.

The annual death-rate in Dublin, which had been equal to 20·9, 20·1, and 16·8 per 1000 in the three preceding weeks, rose again to 17·3 during the week ending August 11th. During the first six weeks of the current quarter the death-rate in the city averaged 18·5 per 1000, the rates during the same period being 12·7 in London and 12·8 in Edinburgh. The 126 deaths of Dublin residents during the week under notice showed an increase of four upon the number in the previous week, and included ten which were referred to diarrhœa, three to whooping-cough, two to "fever," two to measles, two to diphtheria, and not one either to scarlet fever or small-pox. These 19 deaths from the principal epidemic diseases showed an increase of five upon the number in the previous week, and were equal to an annual rate of 2·8 per 1000, the death-rate from the same diseases being 3·9 in London and 1·4 in Edinburgh. The ten fatal cases of diarrhœa in Dublin were fewer by one than the number in the previous week, while the fatality of other epidemic diseases showed an increase. The deaths of infants showed a considerable further increase last week, whereas those of elderly persons showed a decline. Three inquest cases and three deaths from violence were registered; and 39, or 31 per cent., of the deaths occurred in public institutions. The causes of five, or nearly 4 per cent., of the 126 deaths were not certified either by a registered medical practitioner or by a coroner, while all the causes of death were duly certified in Edinburgh and all but two of the 1352 deaths in London.

VITAL STATISTICS OF LONDON DURING JULY, 1906.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 7·7 per 1000 of the population, estimated at 4,721,217 persons in the middle of the year. In the three preceding months the rates had been 5·9, 6·4, and 7·6 per 1000 respectively. The lowest rates last month were recorded in Kensington, the City of Westminster, St. Marylebone, Stoke Newington, and Holborn; and the highest rates in Hampstead, the City of London, Bethnal Green, Southwark, Deptford, and Greenwich. No cases of small-pox were notified last month, against one, six, and ten in the three preceding months. The Metropolitan Asylums hospitals contained one small-pox patient at the end of last month, against six, five, and 11 at the end of the three preceding months. The prevalence of scarlet fever showed a slight excess in July as compared with the previous month; this disease was proportionally most prevalent in Hampstead, Finsbury, the City of London, Shoreditch, Bethnal Green, Southwark, Deptford, and Greenwich. The Metropolitan Asylums hospitals contained 3004 scarlet fever patients at the end of last month, against 2192, 2462, and 2705 at the end of the three preceding months; the weekly admissions averaged 395, against 282, 321, and 254 in the three preceding months. Diphtheria was considerably more prevalent than in the preceding month; the greatest proportional prevalence of this disease was recorded in Hammersmith, Bethnal Green, Stepney, Bermondsey, Deptford, and Greenwich. The number of diphtheria patients in the Metropolitan Asylums hospitals, which had been 850, 760, and 782 at the end of the three preceding months, had further risen to 872 at the end of last month; the weekly admissions averaged 135, against 103, 98, and 114 in the three preceding months. The prevalence of enteric fever was considerably less than in the preceding month; amongst the various metropolitan boroughs this disease was proportionally most prevalent in Islington, Holborn, Poplar, Southwark, and Greenwich. There were 93 enteric fever patients under treatment in the Metropolitan Asylums hospitals at the end of the three preceding months; the weekly admissions averaged 15, against 11, 12, and 20 in the three preceding months. Erysipelas was proportionally most prevalent in St. Pancras, the City of London, Bethnal Green, Southwark, Bermondsey, and Deptford. The 25 cases of puerperal fever included three belonging to Lambeth, and two each to Fulham, Bethnal Green, Battersea, Wandsworth, and Deptford.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ending July 28th 4079 deaths of persons belonging to London were registered, equal to an annual rate of 11·3 per 1000 of the population; in the three preceding months the rates had been 17·0, 13·8, and 11·9 per 1000. The death-rates last month ranged from 8·1 in Stoke Newington, 8·2 in Lewisham, 8·3 in Hampstead, 8·4 in Paddington, and 8·7 in Fulham and in Chelsea, to 13·8 in Holborn, 14·0 in the City of London, 14·3 in Southwark, 14·5 in St. Marylebone, 17·0 in Bermondsey, and 18·1 in Finsbury. The 4079 deaths from all causes in London last month included 482 which were referred to the principal infectious diseases; of these, 126 resulted from measles, 41 from scarlet fever, 41 from diphtheria, 60 from whooping-cough, 25 from "fever" (chiefly enteric), and 189 from diarrhœa. Among the metropolitan boroughs these diseases caused the lowest rates in Paddington, Chelsea, Stoke Newington, Camberwell, Greenwich, Lewisham, and Woolwich; and the highest rates in St. Marylebone, Finsbury, Poplar, Southwark, Bermondsey, and Battersea. The 126 deaths from measles were ten fewer than the corrected average number in the corresponding periods of the four preceding years; this disease was proportionally most fatal in Kensington, St. Marylebone, Holborn, Finsbury, and Poplar. The 41 fatal cases of scarlet fever were seven in excess of the corrected average number; the greatest proportional mortality from this disease occurred in Hampstead, Shoreditch, Southwark, Battersea, Greenwich, and Lewisham. The 41 deaths from diphtheria were seven fewer than the average for the corresponding period of the four preceding years; among the various metropolitan boroughs diphtheria was proportionally most fatal in Hammersmith, St. Marylebone, Finsbury, Bermondsey, Battersea, and Deptford. The 60 fatal cases of whooping-cough showed a decline of 51 from the corrected average number; the highest death-rates from this disease were recorded in Islington, Finsbury, Bermondsey, Battersea and Wandsworth. The 25 deaths from "fever" were six fewer than the average for the corresponding periods of the four preceding years; of these 25 deaths seven belonged to Lambeth, four to Camberwell, three to Islington, two to the City of Westminster, two to Wandsworth, and one each to seven other boroughs. The 169 fatal cases of diarrhœa were 134 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was 30 per cent. below the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 86 per 1000. The lowest rates of infant mortality were recorded in Paddington, Hampstead, Deptford, Greenwich, Lewisham, and Woolwich.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—*Fleet Surgeons:* G. A. S. Bell to the *President*, additional, for examination of Royal Marine candidates; D'Arcy Harvey to the *President*, additional, for three months' course at West London Hospital. Surgeons: E. A. G. Wilkinson to the *Pembroke*, additional, for disposal (lent to Yarmouth Hospital, temporary). Civil Practitioner S. E. Barrett to be Surgeon and Agent at Tillingham, Bradwell, and Stangate.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Charles J. W. Tatham retires on retired pay (dated August 11th, 1906). Lieutenant-Colonel Robert Caldwell has joined the Southern Command and assumed the duties of Specialist Sanitary Officer, Western area, in place of Major C. J. Willmer Tatham, who has filled that post at Devonport for some time past. Captain Charles S. Cato resigns his commission (dated August 15th, 1906).

Captain R. A. Cunningham has arrived for duty at Gosport. Lieutenant E. G. Anthonisz has left the Southern Command for duty at Colchester.

The Principal Medical Officer in India.

Surgeon-General W. L. Gubbins, C.B., M.V.O., A.M.S., has been appointed to Lord Kitchener's staff as Principal Medical Officer of His Majesty's forces in India, in succession to Sir Thomas Gallwey, K.C.M.G., C.B., transferred to Aldershot.

Imperial Yeomanry.

2nd County of London (Westminster Dragoons): Frederic William Longhurst to be Surgeon-Lieutenant (dated July 16th, 1906). Lothians and Berwickshire: John McWatt (formerly Surgeon-Lieutenant, 2nd (Berwickshire) Volunteer Battalion the King's Own Scottish Borderers), to be Surgeon-Lieutenant (dated July 7th, 1906). Suffolk (The Duke of York's Own Loyal Suffolk Hussars): Surgeon-Lieutenant L. A. Avery to be Surgeon-Captain (dated August 15th, 1906). Sussex: Surgeon-Lieutenant J. H. Dauber to be Surgeon-Captain (dated August 15th, 1906).

Volunteer Corps.

Royal Engineers (Volunteers): 2nd (Leeds) Yorkshire (West Riding): Alexander Brodie Seton Stewart to be Surgeon-Lieutenant (dated August 15th, 1906).

Rifle: 1st Lanarkshire Volunteer Rifle Corps: Surgeon-Major F. V. Adams is borne as Supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Scottish Rifle Volunteer Infantry Brigade (dated July 3rd, 1906). 2nd Volunteer Battalion the Oxfordshire Light Infantry: Hubert de Burgho Dwyer to be Surgeon-Lieutenant (dated August 3rd, 1906). 2nd Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment): Surgeon-Captain and Honorary Surgeon-Major J. H. Maclean resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated August 11th, 1906). 1st Nottinghamshire (Robin Hood) Volunteer Rifle Corps: Surgeon-Captain R. H. Cordeux resigns his commission (dated August 11th, 1906). 2nd Volunteer Battalion the Duke of Cambridge's Own (Middlesex Regiment): Surgeon-Captain E. Farr resigns his commission (dated August 11th, 1906).

Royal Army Medical Corps (Volunteers).

Scottish Command: Edinburgh Company: Lieutenant D. Waterston to be Captain (dated August 11th, 1906).

Deaths in the Services.

Deputy Surgeon-General Henry Fowle Smith, A.M.D. (retired), recently, at the age of 82 years. He joined the army as an assistant surgeon in March, 1847, and having taken the M.D. of the University of Aberdeen in 1850, served throughout the Eastern Campaign of 1854–55, being attached to headquarters. He had medical charge of the staff belonging to the adjutant and quartermaster-general's department, and was subsequently on the personal staff of Sir James Simpson and Sir William Codrington. He was present at the action of Bulganar, at the battles of the Alma, Balaclava, and Inkerman, and throughout the siege of Sebastopol until the fall of the fortress (medal with four clasps, Turkish medal, and the Fifth Class of the Medjidie). In 1867 he was promoted to be surgeon-major. He retired in 1875, with the rank of deputy surgeon-general.

Correspondence.

"Audi alteram partem."

STOMATITIS DUE TO A MERCURIAL INJECTION GIVEN FIVE MONTHS PREVIOUSLY.

To the Editors of THE LANCET.

SIRS,—The case reported by M. P. Menetrier and M. Bouchard and referred to by you in an annotation in THE LANCET of August 11th, p. 386, as exemplifying the dangers of mercurial poisoning by the injection of "grey oil," is the best object-lesson I have yet read to illustrate the results of disregarding one of the first rules followed by the advocates of the intramuscular method—viz., that the mercury must be injected into the muscles and not merely deposited in the subcutaneous tissue. I venture to assert that in the case referred to the poisoning occurred in consequence of faulty technique, as the mercury never reached the muscles at all but, as M. Menetrier and M. Bouchard themselves state, was discovered in the subcutaneous tissue where it had remained temporarily encapsuled.

An injection may fail to be absorbed for many reasons. Firstly, the needle used may not be long enough to reach the muscle through the fatty tissue which is often very plentiful in the gluteal region. Secondly, the needle, though long enough, may not be passed in sufficiently deeply. Thirdly, the locality chosen for the injection may not be a suitable one; for example, if the injection is given too high up in the buttock where the muscular layer is thin absorption is likely to be slow. In a case of my own where injections were given to a stout patient with a short needle, in spite of the fact that several injections had been given the patient's condition did not improve and, a doubt arising as to whether the mercury was being absorbed, a radiograph was taken which showed each dose that had been administered lying in a lump in the subcutaneous tissue. The collections of mercury left by these injections could be both felt in the tissues as nodes and seen in a radiograph for some six weeks afterwards.

In contrast to this a series of radiographs of my patients show that mercury when injected into the muscles themselves spreads out in striæ along the course of the muscular fibres, in which position the looseness of the tissues and their constant state of motion render encapsulation impossible. There is never any node to be felt and a few weeks are always sufficient to obliterate all radiographic evidence of mercury. My assistants and I have pursued this method for over two years, during which time we have had upwards of 200 cases of syphilis under our care in private and hospital practice. Some of these patients have received as many as 40 or 50 injections of grey oil without any ill-effects.

I am, Sirs, yours faithfully,
STOPFORD TAYLOR.

Liverpool, August 14th, 1906.

PS.—A similar explanation might also apply to the cases of mercurial poisoning occurring in the Egyptian command in 1901 and reported in the Army Medical Report of 1904.

THE BELATED LUNACY REPORT.

To the Editors of THE LANCET.

SIRS,—May I draw attention to the fact that the sixtieth annual report of the Lunacy Commissioners is not yet issued? In view of the great increase of lunacy and the projected appointment of a Royal Commission of inquiry may I urge upon the Lord Chancellor—to whom these reports are addressed—to see that the sixtieth report is issued without any further delay than is absolutely necessary? The fifty-ninth report is dated June, 1905. The cost of pauper lunacy for 1904 was £2,286,652; for 1905 this huge sum will be greatly exceeded.

I am, Sirs, yours faithfully,
H. R. GAWEN GOGAY.

Southchurch Beach, Essex, August 11th, 1906.

THE LESSON OF THE PERKIN JUBILEE.

To the Editors of THE LANCET.

SIRS,—Your readers will all be interested in your account of the jubilee of Sir William Henry Perkin, the discoverer of the first aniline dye, but I think it important that the true lesson of this jubilee should be pointed out. There is no gainsaying the fact that the aniline industry was originally an English industry and one we could carry on to the greatest advantage but that to-day the aniline dyes and the other valuable compounds derived from coal tar by synthetic chemistry are made in Germany. The reason for this is not far to seek. If to-morrow a chemist discovered a synthetic process for making quinine at say 1s. an ounce and he took his process to any body of capitalists they undoubtedly would start the works for making the quinine in Germany rather than in England for two reasons: (1) that under the German patent laws a patent is only valid for two years unless the article is made in Germany; and (2) if the works are to be in Germany the manufacturer of 60,000,000 in Germany and 40,000,000 in the British Isles, while if he puts his works down in England he has only 40,000,000 in England, with 60,000,000 in Germany being closed to him by tariff. For the sake of making a fair comparison I have left out of consideration other countries. If I am wrong I should be very glad to be put right by any of your Free Trade readers.

I am, Sirs, yours faithfully.
SIDNEY BARWISE, M.D. Lond., B Sc. Birm.
Duffield, near Derby, August 8th, 1906.

"FLAGELLA OR PSEUDOPODIA?"

To the Editors of THE LANCET.

SIRS,—In Dr. E. H. Hunt's very interesting note *re* the discovery of flagellated protozoa in a rectal abscess caused by the swallowing of a fish-bone, which appeared in THE LANCET of July 28th, p. 216, he states that "the outer coat was very thin and easily protruded when the organism came in contact with pus cells," though he does not seem to connect this property of the amœbæ with the formation of the flagella; he admits that after six hours the flagellated bodies became circular and that the flagella were difficult to see—they had, in fact, disappeared. I need hardly say that these amœbæ, including bacillus coli, have long been known to have the property of protruding pseudopodia in the act of enveloping erythrocytes, &c., a few of which are generally to be found within their endosarcal protoplasm, as shown by the "two or three darker masses seen inside resembling nuclei." The highly refractile ectosarc, extraordinary motility, relatively large size, and the length of their pseudopodia, as compared with those of the bacillus coli, had they been observed, point clearly to their being the entamœba histolytica vel dysenteriæ of Schaudinn.

I would further point out the important fact that these amœbæ are practically extra-corporeal, as noted in my letter to the *British Medical Journal*, dated July 23rd last, and as shown in Dr. Hunt's case their intra-corporeal presence was merely accidental. Regarding the impossibility to detect such protozoa in specimens prepared by any of the ordinary stains, I have always found Romanowsky's stain very satisfactory in distinguishing this protozoon from the bacillus coli; the ectosarc of the latter stains less intensely than the endosarc, while in the entamœba dysenteriæ the ectosarc stains more intensely than the endosarc. There are, of course, many other means of differentiating between the two.

I am, Sirs, yours faithfully,
H. D. McCULLOCH, M.B., C.M. Glasg.,
late Chief Medical Officer to H.H. the Nizam's State Railways Company.
Bournemouth, August 9th, 1906.

SALICYLATE OF SODIUM IN PUERPERAL FEVER.

To the Editors of THE LANCET.

SIRS,—I wish to draw attention to the value of salicylate of sodium in the treatment of puerperal fever. In spite of the utmost care on the part of accoucheurs in disinfecting their hands and instruments septic infection will result in a few cases from various causes, especially among those living in poor and overcrowded districts. A quick pulse with a rise of temperature is an indication of early and active interference, whether this is considered to be due to sepsis or not. A mercurial intra-uterine douche, to be continued twice daily if necessary, and the administration of 10 grains of salicylate of sodium every three hours should soon reduce both the temperature and the pulse. Should there be any depression quinine may be substituted later. I have seen such beneficial results from the use of salicylate of sodium both in puerperal fever and puerperal malarial fever when other remedies have failed that I have no hesitation in recommending it to be tried first of all drugs. Its action is that of an internal antiseptic and together with the local application of an antiseptic douche forms a rational mode of treatment in all cases of puerperal septicæmia. The drug is mentioned in obstetrical works but it does not appear to be used in practice so frequently as it deserves. Its early administration would save the employment of antistreptococcus serum.

I am, Sirs, yours faithfully,
Ealing, W., August 8th, 1906. EDWIN CHILL, M.D. Edin.

STUTTERING.

To the Editors of THE LANCET.

SIRS,—Your issue of July 14th has only just reached me and I crave your indulgence for space in your next issue. Dr. W. S. Colman in his admirable paper does not lay sufficient stress upon the difference between stammering and stuttering, an error commonly made. A stammerer does not know *how* to speak. A stutterer does not know *when* to speak. Stammering is caused frequently, as the author points out, by malformation of the organs of speech, their misuse, &c., whereas the organs in the case of stuttering are perfectly normal and its cause is often cerebral. If accompanied by facial and other muscular twitchings it is more difficult to cure. Medical treatment should go hand in hand with the educational treatment.

I am sure that all concerned in the subject must be grateful to Dr. Colman for having drawn attention to it, for unfortunately we have neglected too long the care and attention of proper articulation in our big public and elementary schools and I hope that very shortly a "Spracharzt" will be attached to all our large educational establishments. We shall have to find a word for the one I use (an importation from Germany), for which I think we have no equivalent as yet in our own language.

I am, Sirs, yours faithfully,
WILLIAM VAN PRAAGH.
Fitzroy square, W., August 10th, 1906.

WHAT IS A SPECIALIST?

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 28th you published a letter with this title signed "A. Z." which appears to me to go insufficiently deep into the matter and to rather understate his case. Your note at the end emboldens me to come to his support, as I firmly and honestly believe you take a rather too charitable view of matters, though your view is the one which I myself held till I experienced what I will relate. I have become disillusioned and write with much bitterness of heart and complete and absolute distrust of all my fellow-men, particularly if belonging to the medical profession, with, of course, a few exceptions. Claiming your motto, "Audi alteram partem," as my justification, I ask you to put before your readers these views and estimations of my fellow men; they have been forced upon me by actual experience of a system of which I and scores of other men are the helpless victims. Incidentally the careers of men are altered by this system and, as "A. Z." puts it, "adversely and profoundly altered"; besides there is the question of helpless wives and children who suffer as the result of a want of organisation and straightforwardness in certain ranks of the medical profession.

A "specialist" as produced by our modern methods is necessarily, I maintain, for a certain number of years a fraud on his profession and the public. He is made a specialist of more or less practical ability by means of public funds subscribed for charitable purposes, the funds being more or less intrusted to the medical profession conjointly with a few lay persons. The *only* person who can be honestly called a specialist from the moment he starts in his specialism is one who has been working at his profession generally, but who, as the result of his work, has taken to a particular subject solely because he is proficient at it; he therefore can, and does, give real value in exchange for the money he demands. The other "specialist" (*sic*) is a person who hopes to become a specialist, who is ignorant of everything in general (not excepting his so-called "specialism") until such time as he has gleaned enough knowledge honestly to deserve to be suspected of "specialism." This person in the meanwhile practises as a "specialist," and not even yourselves can for a moment charitably pretend that the situation even savours of what ought to be. He is, as a rule, some young and lucky man, perhaps with a capacity for making himself agreeable, who has been selected by older men to fill vacancies on hospital staffs. He may even have been selected to keep out other more experienced men, and therefore more dangerous men from a competitive point of view.

Time and professional usages have marred the old ideal that the hospital staff exists for the dispensing of gratuitous care to the poor; the necessity of holding a hospital appointment if a man is to *get on* is now generally recognised. A man must have a post, and if he be a youngster and inexperienced he must have material to gain experience upon. This is well and good, but let us look at the situation honestly. *Incidentally*, the material must be maintained, kept, and fed, and where better than in a hospital and at someone else's expense? Of course, when the rich man who has been paying falls ill he can have the benefit of the special knowledge by buying it at the "ring price." The above fully, though unpalatably, explains the "specialist" business and also his undue multiplication. As we are going, in a few years more there will be far more "specialists" than patients. If appointments are continuously filled by tyros to the exclusion of older and more experienced men the inevitable will happen. A crowd of competitors for public favour will undersell each other. Human nature is the same all the world over, in or out of the medical profession, and the results are the same—a few at the top will busily glean to the last straw, and all the large rest must tumble over one another to get a bare living. The danger to the public may be thought to be not worth considering by some of our colleagues when professional interests are at stake, but I hold that there are all the elements in this "specialist-hospital-system" for a merciless attack on the profession, absolutely unanswerable and overwhelmingly disastrous to the profession as a whole.

I am the last man to pretend that everyonè in the higher ranks of the profession is moulded according to the foregoing picture; indeed, there are men in our ranks to associate with whom is an exhilarating moral and mental tonic. But the good and honest men are too few to leaven the mass below, (I am speaking exclusively of the so-called "specialist"). Two or three grand, noble men can do a great deal in a hospital staff for good; but in the long run it ends the same, as it always does when votes are counted, and here is where the evil shows itself ugliest. The brightest and grandest outlook, but for the constant drudgery and hard work, lies solely in the ranks of the general practitioner, who taking him all in all is the backbone of our calling. To emerge from his ranks and endeavour to enter the so-called higher grade is to take a plunge into a sorry cesspool of human weakness, and that this is so is due to our present system of hospital appointments. I write quite frankly as a disappointed and disgusted man, and I know that this fact must discount my words; none the less I am accurate.

The present system of advertising vacancies, which are not really vacancies in any sense of the term, is a fraud—it puts men to the expense of getting testimonials printed, causes them to worry their friends for these testimonials and wastes their time in calling on medical members of staffs (where one is sure to be told that no one cares a jot for testimonials). You could confer a great boon on your readers if you insisted on obtaining a guarantee that posts really were vacant, and would publish the guarantee along with the notification of vacancy. Why is this trick practised of advertising posts that will be given to selected men for certain, no outsides being wanted? Angry and disappointed candidates will say that it is done simply to fool the public and keep up the flow of money. Who is to contradict them? Calling on staffs in relation to vacancies is one of the most disagreeable things self-respecting members of an honourable profession can be asked to do, and when it is undergone to no purpose in support of a pretence it is loathsome. A man can apply for vacancy after vacancy and be passed over if he has not the reputation of being "a pleasant colleague to work with." All your readers will at once say that they are not surprised, but how many people stop to think what this may mean? The following true story will illustrate my point. I was asked to join a "money Zollverein" on a certain hospital of which I was a new member of the staff. On inquiring what it meant, I was coolly informed that all the members of the "Zollverein" were expected to send their private paying patients to one another for special forms of treatment! I declined to enter into such an arrangement and I was allowed to understand that if I did not I should not be a welcome colleague. Shortly after that, for other reasons, I resigned my post, and now the workers of the Zollverein are, I understand, busy informing members of our profession that they found me most unsatisfactory and quarrelsome to work with.

Candidates for appointments which are really vacant ought to be relieved of the necessity of soliciting the support of persons who do not want to see them. But I would go much further than this. I would place the staffing of the smaller or special London hospitals in the hands of a central body like the King Edward's Hospital Fund, which will look into the credentials of persons willing and desirous of becoming officers on hospitals and will allot a man as vacancies occur. If any man is so allotted, and he is not wanted by the particular hospital staff, let them object formally in writing, stating their grounds, and thus give the candidate the right to meet his accusers. You have invited correspondence and I accept your invitation.

I am, Sirs, yours faithfully,

August 8th, 1906. F.R.C.S. ENG., M.D.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Post-mortem Examinations.

A LETTER appeared in the *Manchester Guardian* about ten days ago narrating the proceedings that took place after the sudden death of a lady, the mother of the writer of the communication to the press. The lady died suddenly, at the age of 74 years, 11 days after her husband's death. The police were informed and police officers called at the house, asked many questions, and at 11.30 P.M. two of them came with orders to take the body to the public mortuary, where a post-mortem examination was made and the coffin was closed without any opportunity being given to the sons and daughters of seeing their mother's face again. So far as can be judged from the letter of complaint to the *Manchester Guardian* there were no suspicious circumstances connected with the death, and the verdict of the jury was "Death from natural causes." It is, of course, difficult to distinguish between cases where such proceedings are necessary and where they may be avoided with safety, but the feeling of the writer in question seems to be that too much is left to the policeman. It is possible that the police in giving their version of the case to the coroner are not always very discriminating, but it would not be well to be lax as to the safeguarding of human life, even if at times some pain is caused. With tact and good feeling it should not often be given.

Small-pox and Scarlet Fever.

Zymotic diseases still assert themselves in this district. At Oldham three householders were summoned the other day for having failed to notify the occurrence of infectious disease in their families. Perhaps the recent outbreak of small-pox has kept the authorities on the *qui vive*. Scarlet fever is prevalent at Hyde. A few days ago there were nearly 80 cases in hospital and the outbreak is described as "of a vicious type and difficult to stamp out."

A Town of Good Counsel.

Blackburn by its health committee gives good advice to its people, young and old. Posters have been displayed setting forth the dangers that alcohol, strong tea, and cigarette smoking bring in their train. "The children of drunken parents are frequently feeble from birth and inherit a direct tendency to many forms of physical and mental disease." The dirt and squalor of the drunkard's home, the children ill-fed, ill-taught, and neglected, his own life drifting from bad to worse, are all told in graphic language which, unfortunately, will be read only by the sober ones. Tea-drinkers are warned against "strong brew" and are told that tea should be freshly made and should only stand about two minutes. By the way, in some parts of the country this "strong brew" is further strengthened by a modicum of rum, tending, as the cronies consider, to good fellowship and the pleasure of drinking. Lastly, the evils of cigarette smoking and the inhalation of the smoke, especially by youths, are given as "potent causes of physical deterioration." Everyone will wish all success to the Blackburn experiment and will hope against hope that the sensible advice of the health committee will meet with the attention of those concerned and be followed by them, but the probability is that the posters will soon be forgotten and covered by others. The old slow method of example and personal influence, well exercised, will turn out to be the most efficient means of checking the mischief of the drink habit.

Ptomaine Poisoning.

An inquest held by the Manchester city coroner on August 9th illustrates the risks people run of ptomaine poisoning and the prevalent ignorance, spoken of already with almost wearisome iteration, as to the proper feeding of infants. A family ate some braised beef which had been bought from a confectioner. The father, mother, and children were all taken ill afterwards and the youngest child, 16 months old, who had, like the rest, eaten this braised beef, died. The confectioner had bought the beef from a butcher on the Thursday. It was cooked immediately and pressed the same evening. On the Saturday evening the last of it was sold to the unfortunate family who suffered so severely, and the confectioner had been told of eight other people who had been made ill. The butcher said that he bought the meat fresh on the Tuesday from the abattoirs, put it in brine, and sold it two days later. On the Saturday evening the beef was eaten, the whole family was ill on the Sunday, and on the Wednesday, in spite of treatment, the baby died. Dr. Scott, who attended them, said that the child died from ptomaine poisoning and that the "poison might exist in an article of food without being discoverable by ordinary individuals." These "cadaveric alkaloids" are of such frequent occurrence and so unsuspected that they should stimulate inquiry as to some method of detection.

Death Certificates.

The city coroner made some strong comments the other day about giving certificates of death. It seems that two students from St. Mary's Hospital attended a confinement and the newly born child died. They could not, of course, give a certificate and the mother's sister was told to go from person to person at the hospital and eventually, it is said, obtained a certificate signed by a medical man, "purporting that the person supplying it was present at the birth." The coroner said that, "as a matter of fact, the doctor was not present and had no business to supply the certificate." The jury gave a verdict of "Death from natural causes." In the absence of further explanation it must be allowed that the coroner was right in his remarks. Although a difficulty as to the death certificate may cause inconvenience to friends, from which a good-natured medical man will wish to relieve them, it does not justify him in going beyond the strict facts of the case and in giving an inaccurate certificate.

August 14th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Work in Scotland under the Inebriates Acts.

Dr. James C. Dunlop has just issued his report on the work done in Scotland under the Inebriates Acts. At the commencement of the year there were in Scotland six institutions licensed or certified for the treatment or reformation of inebriates. Of these one was a State reformatory, four were certified inebriate reformatories, and one was a licensed retreat. During the year no fresh certificates or licences have been granted, but all the above-mentioned six have continued. The number of persons being dealt with in these institutions, or temporarily absent from them at the commencement of the year, was 107; of these 27 were in a retreat, 47 were in certified inebriate reformatories, 12 were in the State inebriate reformatory, and 21 were temporarily absent from reformatories. Admissions during the year numbered 103, 63 being to a retreat, 36 to certified inebriate reformatories, and nine to the State inebriate reformatory. Discharges during the year numbered 102, of whom 62 were from a retreat, 31 from certified inebriate reformatories, and nine from the State inebriate reformatory. There were transfers from certified inebriate reformatories to the State inebriate reformatory. At the end of the year there were in all 113 persons being dealt with, of whom 28 were in a retreat, 56 were in certified inebriate reformatories, 16 were in the State inebriate reformatory, and 13 were temporarily absent from reformatories. The total number of persons dealt with during the year amounted to 215, of whom 100 were patients in a retreat, 18 were reformatory inmates sentenced under Section 23 of the 1898 Act, and 97 were reformatory inmates sentenced under Section 24 of that Act. As was the case last year, there is in Scotland only one retreat licensed in terms of the Habitual Drunkards Act, 1879, for the reception and treatment of voluntary patients. This retreat, Invernith Lodge, situated in the county of Fife and conducted by Mr. J. Q. Donald, has accommodation for the treatment of 30 inmates and is licensed for the detention of 22 cases admitted in terms of the 1879 Act. Dr. Dunlop states that he visited and inspected this retreat on several occasions during the year and was satisfied that the institution was being conducted in an exemplary manner. It is interesting to note that out of the 185 cases discharged since the opening of this institution it has been possible to trace the subsequent history in 142. Out of these 78, or 55 per cent., have by remaining free from the habit, given evidence of successful issue. To put it more exactly, 45 have been total abstainers for a period of at least a year, while 33 by being abstainers since discharge, though the period elapsed has not amounted to a year, may be considered as hopeful cases. Dr. Dunlop in his report points out that this retreat is only for persons of the moneyed classes, and that there is no licensed accommodation for the voluntary reception and treatment of male inebriates of the poorer classes, and none for the voluntary reception of female inebriates of either the moneyed or the poorer classes.

Appointment to the Chair of Physiology, Glasgow.

The King has been pleased, on the recommendation of the Secretary for Scotland, to appoint Dr. Diarmid Noel Paton, superintendent of the laboratory of the Royal College of Physicians of Edinburgh, to be Regius Professor of Physiology in the University of Glasgow, in place of Professor John Gray McKendrick, who has recently resigned. The new professor of physiology is the eldest son of the late Sir Noel Paton, R.S.A., and was born in 1859. He was educated at Edinburgh Academy and University and also at Vienna and Paris. He was Baxter scholar in natural science in 1882 and biological Fellow of the University of Edinburgh in 1884. He was appointed lecturer on physiology in the School of Medicine of the Royal Colleges, Edinburgh, in 1886, and three years later received the appointment which he will now vacate. He served on the Royal Commission on Salmon Fisheries in 1900. His numerous publications consist mainly of papers on physiological and fishery subjects.

Partick and Cerebro-spinal Meningitis.

At the monthly meeting of the Partick town council held this week Dr. G. A. Brown, medical officer of health, reported that during July four cases of cerebro-spinal meningitis were removed to the hospital. Of the four cases, three occurred in one family and all affected were children. At the next meeting a proposal is to be brought before the council to add this disease for a period of two years to the list of compulsorily notifiable diseases under the Infectious Disease (Notification) Act. As noted in THE LANCET, this measure has already been adopted by the health committee of Glasgow.

August 14th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

University Education in Ireland.

MANY letters have appeared in the morning papers on this subject, especially with reference to the Royal Commission of inquiry which will meet in October. A section of the Roman Catholic laity has expressed its opinion that what is called the "Bonn University scheme" should be considered. It proposes that Trinity College should be reorganised and practically transformed into a mixed college for Protestant and Roman Catholic students. As might have been anticipated, Dr. Walsh, the Roman Catholic Archbishop of Dublin, has written that such a scheme was futile and would only uselessly delay the time occupied by the Commission of inquiry. In a subsequent letter the Archbishop stated that there is "no college within the University of Bonn and therefore there is no college there with two faculties of theology, Roman Catholic and Protestant, with two places of worship; therefore Bonn supplies no precedent for the adoption of the scheme which for brevity was called the proposed Trinity College solution." To this Dr. Rudolf Imelman, Ph.D., who is a member of the teaching staff of the University of Bonn, has replied in a letter in which he states that there is theoretically nothing to prevent the establishment in his university of a college in Bonn where students could live together, Protestant and Roman Catholic. He says, moreover, that he does not follow the Archbishop in what seems to be his conclusion—that the absence of a college in Bonn would make it impossible to apply the Bonn system to the University of Dublin. The proposal really emanated from, and was signed by, 21 Fellows and professors of Trinity College as a scheme for consideration by the Royal Commission about to sit in October but in the light of subsequent events its consideration seems futile. When will Irish University education be settled to the satisfaction of rival religions? The matter is most serious for medical students in Ireland.

Purdysburn Fever Hospital.

On August 10th the Countess of Shaftesbury, at the central fire station, Belfast, named the new motor ambulance, one of two to be used to convey patients to the municipal fever hospital at Purdysburn, "The Shaftesbury." The ambulance is of interest as it is a motor one, with accommodation for two recumbent patients at one time and sitting accommodation inside for two other persons. The ambulance takes the form of a motor brougham, the chassis being 12–14 h.p., of the Cottereau make, fitted with Gaulois tyres, 815 × 100. It has three speeds forward and one reverse speed with ample brake power. At the ceremony the chairman of the public health committee took exception to the medical profession objecting to the location of the hospital at a distance from the city but the inconvenience and discomfort to which the patients would be subjected by being conveyed such a long distance are manifest. The very fact that the public health committee has been obliged to procure motor ambulances to make the transit as short as possible shows how absolutely right the medical profession were in objecting to an infectious diseases hospital being so far from the city. The new motor brougham ambulance takes 17 minutes to go from the central fire station (which is, roughly speaking, about the centre of Belfast) to the infectious diseases hospital, while from many distant parts of the city it will take twice as long a time. However, the essential point is that the hospital, which has been on the *tapis* for many years, will be ready for patients about the middle of September. It will be something to have such an institution at last in Belfast, so that to continue to carp at the site will be churlish.

Belfast District Lunatic Asylum.

At a meeting of the committee of management on August 14th it was decided to approve of the block plan for the villa colony at Purdysburn prepared by Mr. Hine, consulting architect, subject to such modifications as may from time to time be thought necessary, and that Mr. Hine with the local architects should be requested to state the rate of remuneration for plans, specifications, and quantities so as to enable the committee to estimate the approximate cost of the scheme and to decide what particular buildings shall be erected.

August 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Malignant Growth of the Stomach; Gastrectomy.

AT a recent meeting of the Rouen Medical Society Dr. Bataille showed a specimen of the pylorus and contiguous half of the stomach presenting on the mucous surface a large circular growth, with thickened and indurated edges, in the centre of which was a deeply ulcerated depression. The growth was obviously malignant. The patient was a woman, aged 37 years, upon whom Dr. Bataille had operated eight years ago for appendicitis. For three months before the second operation she had lost all appetite, had vomited and grown steadily weaker. Through the abdominal walls in the epigastric region and to the right of the middle line there could be felt a hard but mobile mass of about the size of an orange. The mobility allowed the operation of gastrectomy to be possible Some glands were found on both the greater and lesser curvatures. The tumour having been removed, Dr. Bataille sutured the duodenal end to the posterior wall of the stomach, the incision in which he closed by two rows of sutures, practising the operation known as *l'anastomose termino latérale de Kocher*. In a fortnight the patient was convalescent and taking nourishment well.

The French Colonies and the Lunacy Law.

M. Margain and M. Decante have made an interesting report to the Medico-Legal Society of France upon the condition of lunatics in French colonies, the legislative and administrative measures taken in the mother country not being in force in the colonies, where much more arbitrary methods are employed. The number of lunatics in the colonies is relatively larger than it is in France, the most obvious causes being, in addition to the abuse of alcohol and hashish, the presence of many degenerates and persons ill-adapted in other ways to the struggle for existence and many individuals unfortunately influenced by the religious excitement of Mohammedan teaching. M. Margain and M. Decante urge that the same measures as are in force in France should be applied to the colonies, or, failing this, that special means should be devised for putting an end to a lamentable state of affairs. They point out that in Algeria there is no asylum and that the patients have to be transported to Aix or Marseilles.

Mental Confusion in the Course of Typhoid Fever and Scarlet Fever.

At the Sixteenth Congress of Alienists and Neurologists of France held at Lille from August 1st to 7th M. Taty and M. Chaumier gave an account of two cases of mental confusion originating in infectious disease. The patients were two young women, respectively aged 26 years In the one case the febrile period lasted about a month. The patient showed signs of mental agitation and of abhorrence for food. Sero-diagnosis gave a positive reaction for typhoid fever and the patient recovered. In the second case the patient was an alcoholic. Her febrile period lasted some two months. The principal symptoms observed were mental confusion with stupor, abhorrence of food, albuminuria, a parotid abscess, and hæmaturia. The convalescence, during which the mental confusion improved, was hindered by febrile outbreaks due to the abscess. Sero-diagnosis gave a negative reaction as regards typhoid fever. Streptococci were found in the urine and staphylococci in the pus from the abscess. The patient had general desquamation, and apparently scarlet fever was the only infection to explain the morbid train of symptoms.

A New Method for obtaining Hæmatin Crystals for Medico-legal Use.

At a meeting of the Academy of Science held on July 30th M. Sarda and M. Caffart communicated a note about a new method of preparation of hæmatin crystals founded on a method described by M. Leoha-Marzo de Valladolid. The method consists in gently evaporating a portion of the suspected liquid upon a slide; then there are added successively one drop of chlorine water, one drop of pyridin, and one drop of ammonium sulphide The cover-slide is then carefully applied and numerous crystals of chloro-hæmatin are obtained of a rhomboidal form of a deep reddish-brown or scarlet colour.

Loose Bodies in the Knee-joint.

At the summer meeting of the Medical Committee of the Bouches-du-Rhône M. Pons showed loose bodies from the knee-joints of a patient operated upon in the wards under the care of Professor Imbert. The patient was a man, aged 48 years, a miller. One month previously to his operation he suffered from a slight amount of fluid in his left knee-joint following on a fall. At the same time he noticed two moveable bodies in the joint which gave rise to acute pain when he walked. Professor Imbert extracted one of these bodies on May 4th. It was triangular and composed of bone mixed with cartilage. The other foreign body was fixed in the tendon of the patella where it gave the patient no further trouble. Some days later the patient perceived another loose body in the right knee This was removed in the same fashion as the other and the patient went out of the hospital completely cured a few days later.

August 14th.

MEDICINE IN TORONTO.

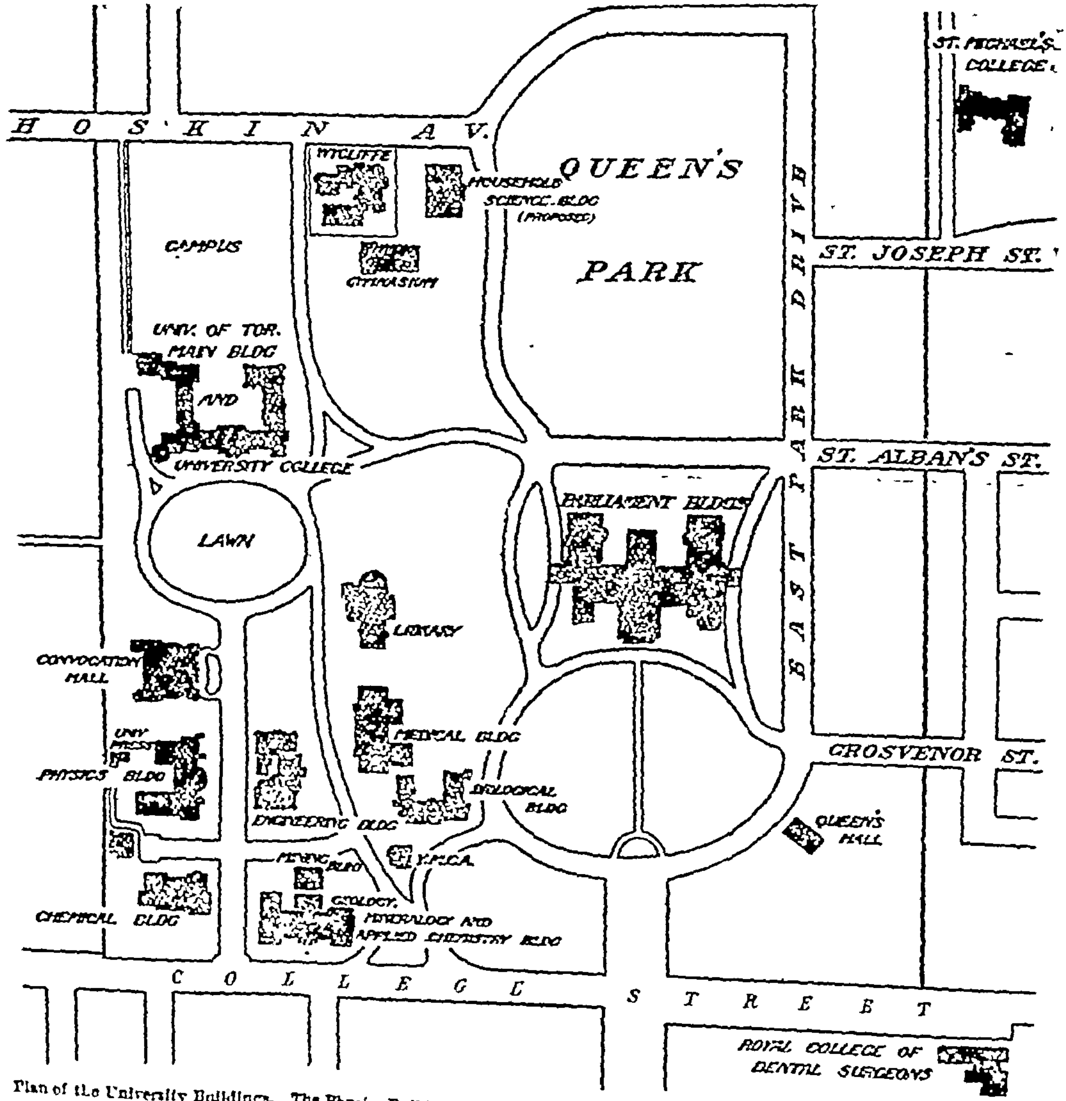
IV.[1]

THE DEVELOPMENT OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF TORONTO AND ITS BUILDINGS.

IT has been shown how, after many checks and drawbacks, in 1887 the Medical Faculty of the University of Toronto came into smooth water. Since that time progress has been more or less uninterrupted. In the place of several medical schools, jealous of each other and so competing among themselves that a low standard of medical education prevailed, there is now *one* central medical faculty which has at its command the best medical talent of the province, as well as the use of buildings for the most part modern, adequate and well equipped for the study of medicine and surgery in their various branches.

The last phase of the fusing of the medical schools of Ontario took place in the summer of 1903, when Trinity Medical School was amalgamated with that of the University of Toronto, and the first inaugural address of the combined faculties was delivered on Oct. 1st, 1903, by Professor William Osler, now Regius Professor of Medicine in the University of Oxford, a Toronto man, and erstwhile a student at Trinity College, Toronto. The present professors in the medical school of the University of Toronto are as follows: Dean of the Faculty: R. A. Reeve, B.A., M.D., LL.D. Emeritus Professors: M. H. Aikins, B.A., M.D., W. W. Ogden, M.D., J. H. Richardson, M.D., and Uzziel Ogden, M.D. Professor and Director of the Anatomical Department: A. Primrose, M.B., C.M. Edin. Professors of Surgery and Clinical Surgery: I. H. Cameron, M.B. Tor., F.R.C.S. Eng., F. Le M. Grasett, M.B., C.M., F.R.C.S. Edin., G. A. Peters, M.B. Tor., F.R.C.S. Eng., and L. Teskey, M.D., C.M. Trin. Professor of Pathology and Bacteriology and Curator of the Museum and Laboratories: J. J. MacKenzie, B.A., M.B. Tor. Professor of Medicine and Clinical Medicine: A. McPhedran, M.B. Tor. Professor of Clinical Medicine: J. L. Davison, B.A. Tor., M.D., C.M. Trin. Professor of Preventive Medicine: C. Sheard, M.D., C.M. Trin. Professor of Materia Medica and Therapeutics: J. M. MacCallum, B.A., M.B. Tor. Professor of Gynæcology and Operative Obstetrics: J. Algernon Temple, M.D., C.M. McGill. Professor of Obstetrics: A. H. Wright, B.A., M.B. Tor. Professor of Gynæcology: J. F. W. Ross, M.B. Tor. Professors of Ophthalmology and Otology: R. A. Reeve, B.A., M.B., LL.D. Tor., G. S. Ryerson, M.D.,

FIG. 13.



Plan of the University Buildings. The Physics Building is in course of erection, while the new Convocation Hall is just completed.

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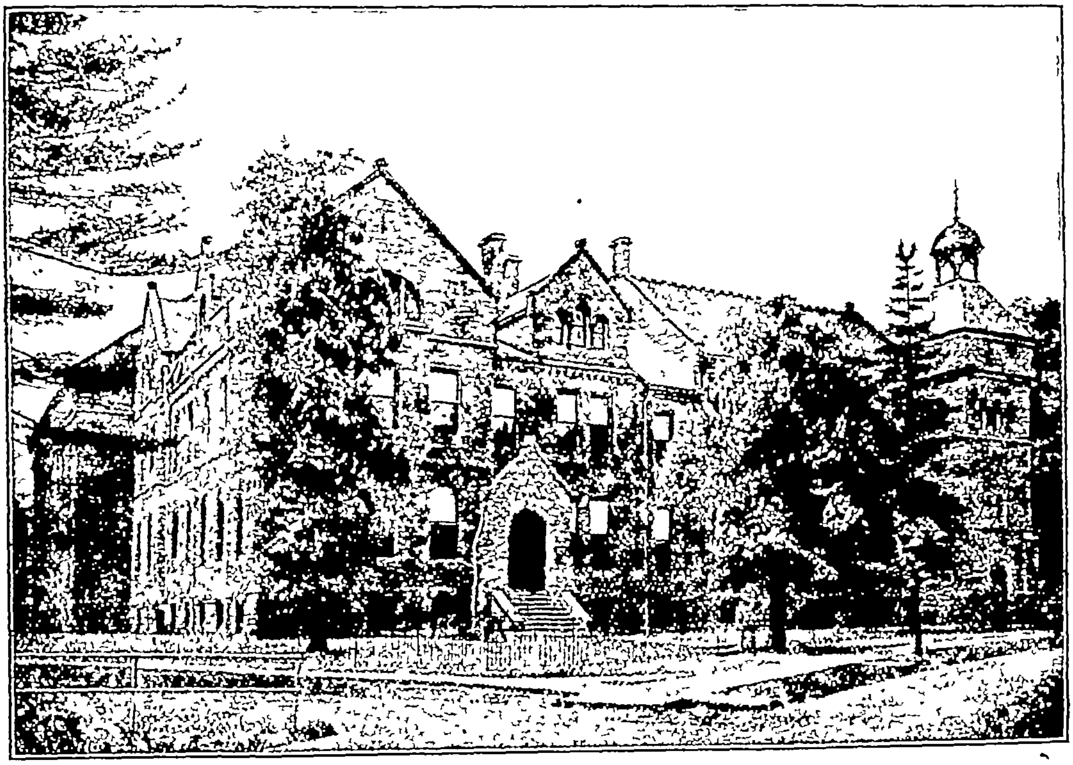
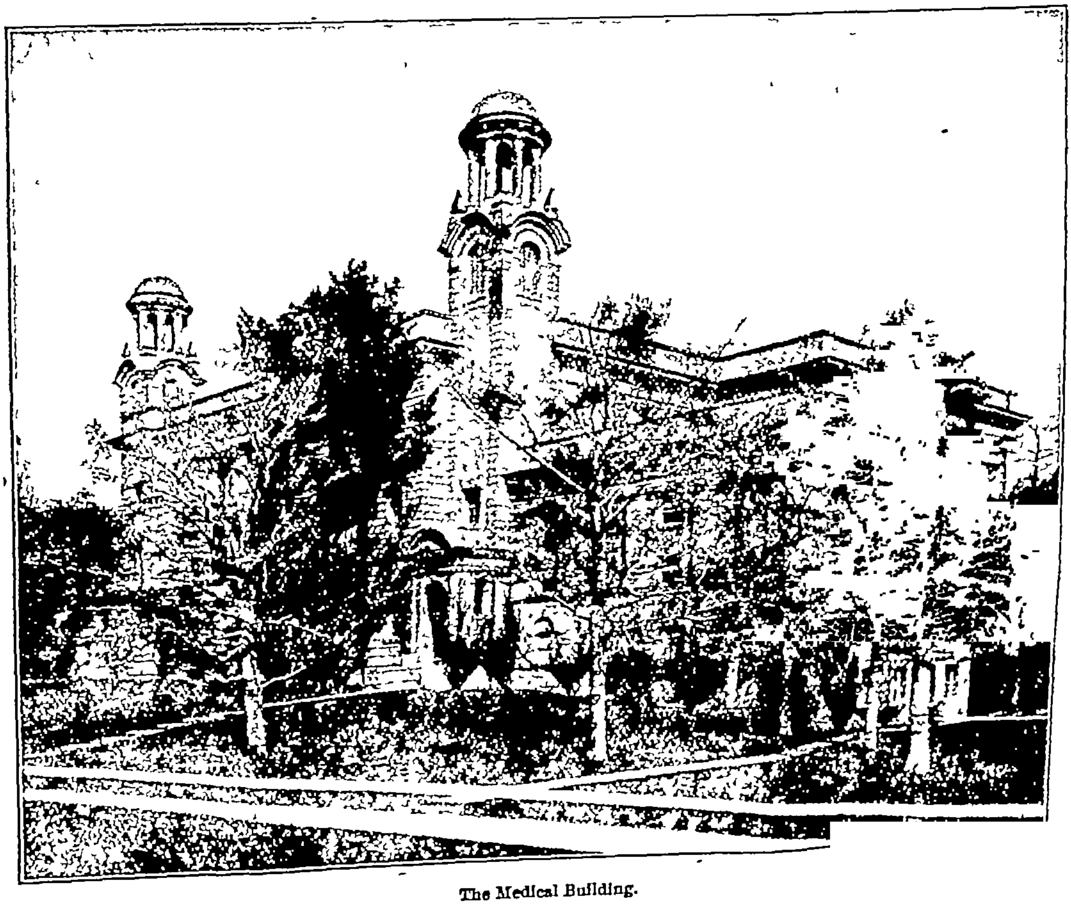
[1] Nos. I., II., and III. were published in THE LANCET of July 28th (p. [illegible]) and August 4th (p. 331) and 11th (p. 405), 1906, respectively.

FIG. 14.



he Biological Building.

FIG. 15.



The Medical Building.

C.M. Trin., and G. H. Burnham, M.D. Tor., F.R.C.S. Edin. Professor of Laryngology and Rhinology: G. R. McDonagh, M.D. Tor. Professor of Hygiene: W. H. Ellis, M.A., M.B. Tor. Professor of Medical Jurisprudence: N. A. Powell, M.D., C.M. Trin., M.D. Bellevue, N.Y. Mental Diseases, Extra-Mural Professors: N. H. Beemer, M.B. Tor., and J. C. Mitchell. M.D., C.M. Trin. Professor of Biology: R. Ramsay Wright, M.A., B.Sc. Edin., LL.D. Tor. Professor of Physiology: A. B. Macallum, M.A., M.B. Tor., Ph.D. Johns Hopkins, F.R.S. Professor of Chemistry: W. R. Lang, D.Sc. Glasg. Professor of Physics: James London, M.A., LL.D. Tor.

The buildings in connexion with the Medical Faculty of the University of Toronto can be easily identified upon the subjoined plan, which we have extracted from the latest edition of the University Calendar. The plan omits Annesley Hall, Victoria College, and Knox College, the first two of which lie to the north of Queen's Park and the last some distance to the west. None of the three has any medical bearing whatever. Victoria College, the old Victoria University, now federated with the University of Toronto, is an arts college and is also a theological (Methodist) institution, and Annesley Hall is the women's college in connexion with it. Knox College is a theological college (Presbyterian). The plan (Fig. 13) shows well how the various buildings are grouped around the central building of the University, the University Library, and the Parliament Buildings of this province. The physical laboratory, established in 1878, is situated at present in the western part of the main university buildings and consists of a series of rooms for elementary work, together with a number of special laboratories. But within a short time all these laboratories will be removed to, and occupy, the New Physics Building now in course of erection and shown on the plan.

The psychological laboratory was established in 1892 and is situated in the west wing of the main university building. The laboratory is well equipped for investigations relating to psycho-physics, psychological optics and acoustics, and time relations of mental phenomena. A small library is connected with the laboratory containing periodicals and special literature of experimental psychology. In 1896 the laboratory was enlarged by the addition of the rooms adjoining the ethnological museum and again in 1900 more rooms were added.

FIG. 16.

Professor A. B. Macallum, F.R.S., Ph.D., Professor of Physiology in the University of Toronto.

The biological building, a separate building, is formed of a central portion which contains the biological museum, and east and west wings, the latter of which is chiefly occupied by the anatomical department. The east wing contains the 12 rooms and laboratories of the biological department proper; on the ground floor is a large lecture room which will accommodate more than 250 students. There are also private rooms, a preparation room, departmental library, and a large laboratory for fourth-year students. Above the lecture room on the first floor is situated the elementary laboratory used for the practical instruction of the large classes of first-year students in arts and medicine, while the remainder is occupied by a lecture room for small classes, a laboratory for third-year students, a laboratory for vegetable physiology, and bacteriology and other rooms. The second floor contains two rooms for the preparation and storage of museum specimens, two for the accommodation of live animals, and also two hot-houses for use in connexion with the practical courses in botany. The biological museum occupies the entire central portion of the biological building. Its arrangement is such as to facilitate the most elementary as well as the most advanced studies. The museum is open to the public; its public entrance is approached from the west façade of the biological building. The student's entrance is in the eastern wing, in which the laboratories are situated. The interior of the museum occupies two floors, subdivided into four large rooms, amply lighted and well ventilated. Three of these rooms are devoted to animal biology and the fourth room, which is to be arranged later for the illustration of vegetable biology, is temporarily fitted up for the accommodation of the Ferrier collection of minerals. The north ground floor room, the south ground floor room, and the south first floor room are open to the public and serve the purpose of a well-equipped Natural History Museum.

A serious fire some little time ago wreaked a considerable amount of damage in the buildings of the University, when the biological museum did not escape damage, but fortunately the injuries by fire did not involve the large collection of models and specimens most useful from an educational standpoint, which have been got together at the expense of much money and devoted labour. Private and public generosity has made good to a large extent the losses incurred, and the museum in its existing condition well fulfils the function of an additional source of biological instruction.

The chemical building was completed in 1895. The building comprises two lecture rooms with accommodation for 300 and 100 students respectively, special laboratories for all kinds of chemical analyses, and for the prosecution of original investigation generally.

For some time past the great increase of students had rendered it incumbent upon the University to provide better facilities for their accommodation and more modern and increased methods of instruction and it was formally recognised some five years ago that it would be necessary to provide new laboratories mainly for instruction in final subjects and for pathology and physiology. It was resolved accordingly to erect a building for this purpose in the University grounds. (Fig. 15.) This building, the medical building, was commenced in 1902 and formally opened in October, 1903. It represents a new departure in medical architecture and in consequence is worthy of a somewhat extended description. The buildings were the first to exemplify the unit system of laboratory construction proposed by Professor Minot of Harvard University, although here and there, in consequence of local conditions, it has not been possible to follow Professor Minot's ideals of construction exactly. The main features of this system were described by Professor A. B. Macallum in *Science* of May 22nd, 1903. The laboratory "unit" room must first of all be no larger than is required to accommodate readily the maximum number of students whose practical instruction a single demonstrator can efficiently guide and control. It must also be of such dimensions that it can at need be made to serve as a museum, a library or reading room, or a small lecture room. The units, further, must be so placed with respect to one another, preferably in pairs or series, that by the removal of the partitions separating them rooms of larger dimensions may, when desired, be obtained at a minimum cost and in a short time. The dimensions of such a unit, as determined by Professor Minot, are 23 by 30 feet and this room will accommodate 24 working students, which number experience has shown is the largest that should be under the supervision of a single class demonstrator. Professor Macallum is of the opinion that the system offers the great advantage of elasticity, for a laboratory director may enlarge or contract at will, or according to the needs of the occasion, the accommodation required for a class. It has, he thinks, other and not less important advantages. The cost of construction is less than in any other system, it adequately provides for the all-important question of light, and it permits of subsequent extensions and additions without disturbance of the original arrangements. Professor Macallum also points out that the system provides for the formation of smaller rooms through the division of the unit. This building, which cost £25,000, is situated, as will be seen by reference to the plan (Fig 13), between the University library and the anatomical wing of the biological department. Externally the building presents a somewhat unusual appearance on account of the enormous window space. The window area is 242 square feet, while the outer wall of each unit measures 420 square feet. The window area is therefore almost three-fifths that of the outer wall. The building is three storeys in height in front, with an additional storey and subbasement in the wings, which extend eastward. Two large lecture rooms are provided which flank the main building; the larger has accommodation for about 350 students, the smaller for about 200 students. In the south wing, in what may be called the basement storey, are situated caretaker's quarters, lavatories, recreation rooms, and reading rooms for the students; in a similar storey in the north wing is a large museum of hygiene. The south wing is occupied by the department of physiology and the main portion of the building and the north wing are used by those who are in the final stage of their medical student career. On the ground floor in the main portion are situated in front the dean's room, a large faculty room, a lavatory, and a library, behind which is placed a pathological museum. In the north wing on this floor behind the lecture theatre are a chart and preparation room, preparation and store rooms for the pathological museum, and laboratories for gross pathology. The second and third floors in the same wing and in front contain the laboratories of pathological histology and bacteriology, with rooms for the professor of pathology and demonstrators and "unit" rooms for small special classes. In the north wing on the third floor "units" are occupied by the Provincial Board of Health. The building is heated by air forced over heated coils by large fans driven by steam, and the ventilation is thus in part provided for and also by the exhaust currents in the ventilation turrets which rise over the entrance. A feature of special interest over and above that of the peculiar construction of the building is the provision of special research rooms. The Ethnological Museum is situated in the second storey of the main University building. A large portion of the ethnological collection was destroyed by the fire of 1890, but the museum contains all that was saved from the fire, together with additions which have been made since that time.

FIG. 17.

Dr. A. Primrose, Professor of Anatomy and Director of the Anatomical Department of the University of Toronto.

This has been necessarily a brief and incomplete story of the rise and organisation of medical education in Toronto. But our account does not claim to give more than the outline of all the numerous occurrences—the actions by distinguished individuals, the actions by corporate bodies, the actions by political persons—which have resulted in making of the medical faculty of the University of Toronto an ideally arranged institution for scientific teaching and research. The members of the British Medical Association who have journeyed to Canada will, many of them, still be present in Toronto when this issue of THE LANCET reaches the city. They will have received every facility from the University authorities for studying on the spot the equipment of the medical school, the laboratories, the museums, and all the other buildings to which we have made but passing allusions, and they will bear witness when they return home that we have not employed exaggerated phrases in placing Toronto before the readers of THE LANCET as an admirably appointed medical centre.

THE ANTI-MALARIAL CAMPAIGN IN ITALY IN 1905.

(FROM A ROMAN CORRESPONDENT.)

IN his report of the work done by the Society for the Study of Malaria during 1905, which has recently been published, Professor Celli has to record results from a greater number of stations in Italy than existed in previous years, especially in Southern Italy and in the islands. New and valuable contributions have also again been supplied during the past year by foreign associates. Here are some of the principal conclusions at which Professor Celli arrives after an obviously careful sifting of a good deal of material evidence.

A. Epidemiology.—The epidemic season of 1905 was in general exceptionally mild in the whole of Northern and in a great part of Central Italy. On the other hand, in Latium and Southern Italy (continental portion) it was, as a rule, severe, whilst in the islands it was not quite so severe as usual. A comparison of the incidence of malaria in the different European countries afflicted by it shows that Italy retains an unenviable pre-eminence over all others, the disease being indeed of a graver type in some localities of Southern Italy than anywhere else on the face of the globe. The hæmatological researches prosecuted by some members of the society point to the conclusion that the various parasites in the different febrile forms do not constitute different species but are rather varieties of the same species.

No method has yet been discovered of diagnosing latent infection and recidivous cases, although it is pretty well established that recidivity is one of the chief causes which determine the annual and local variations of malarial epidemics; hence the importance of perfecting the preventive and curative treatment and especially of improving the methods of administering quinine to children. Again, the seasonal variations of epidemics seem to depend more upon biological properties inherent in the respective parasites than upon climatic conditions. Even in the warm climate of Southern Italy we find that anophelism and also rice culture may exist unaccompanied by malaria. It is interesting to learn that the larvæ of anopheles maculipennis in Algeria and of species very closely resembling it in the Dutch East Indies are capable of developing into the mature insect in sea water, even when the latter is concentrated. Should this turn out to be true of the anopheletes along the Italian coast all hope of eradicating malaria from the marshes by flooding them with sea water must be abandoned. The relations between malaria and meteorological conditions become more uncertain and obscure but the earthquakes in Calabria were undoubtedly a predisposing cause of this season's epidemic in that part of the peninsula.

As an instance of the connexion between malaria and certain industries it is noted that among the mining population of Sardinia the epidemic was more severe than among the agricultural population of the same district. Although an undoubted relation subsists between economic conditions and malaria this does not appear sufficient to explain why such terrible outbreaks should occur in Southern Italy and further researches are necessary to clear up the problem.

B. Prophylaxis.—The use of the State quinine goes on increasing in a remarkable way and is accompanied by a corresponding diminution in the mortality from malaria, as may be clearly seen from the subjoined table. An examination of the vital statistics of Italy from 1887 (when the causes of death first began carefully to be registered and analysed) until 1895 reveals an average annual mortality from malaria of over 15,000. From 1895 to 1901 the mortality fell to some extent with, however, the usual periodic recrudescence in 1900. From 1902, on the contrary, when State quinine was first introduced, the mortality diminished rapidly and progressively until in 1905 it reached the lowest figure hitherto attained—viz., 7838. The table also shows the net proceeds of the sale of the State quinine; these proceeds it is intended to apply to purposes having for their object the combating of the disease by prophylactic measures and works of bonification.

Table showing the Sale of State Quinine and the Mortality from Malaria.

Consumption of State quinine.		Mortality from malaria.		Net proceeds of the sale of State quinine.
Financial year.	Kilogrammes sold.	Year.	Total deaths.	
—	—	1895	16,464	—
—	—	1896	14,017	—
—	—	1897	11,947	—
—	—	1898	11,378	—
—	—	1899	10,811	—
—	—	1900	15,865	—
—	—	1901	13,561	—
1902-03	2,242	1902	9,903	34,270 lire.
1903-04	7,234	1903	8,513	183,033 „
1904-05	14,071	1904	8,501	183,382 „
1905-06	18,712	1905	7,838	230,000 „

The exhibition of the drug in the form of "chocolates of tannate of quinine," made by the State Quinine Factory, for rendering it more agreeable to take, especially for children, has proved of the greatest utility, the more so because of the slow rate of absorption of the tannate and its consequent suitability for the prevention of primitive and recidivous infections. For the rapid and radical cure of the "febbri recidive" no remedy has so far been found, the administration of quinine in daily doses of from one gramme to one and a half grammes for months consecutively, with and without arsenic, and by mouth or hypodermically, having failed to extirpate the infection in certain cases. Fortunately the effect of the prophylactic use of quinine for primitive infections is far otherwise. In the "campi dimostrativi" (experimental areas in malarial districts) reported upon by the members of the society, of 59,340 persons thus treated only 3458, or scarcely 5 8 per cent., were affected either by primitive or recidivous infections. The results naturally varied according to the locality and the number of recidivous cases; but even in Southern Italy, where the worst type prevails, the morbidity sank in the first year of the quinine prophylaxis from 35 to 80 down to 18 per cent. In the worst districts the daily dose of quinine should be 60 centigrammes (9 grains) to 80 centigrammes (12 grains), given in the form of bichlorate rather than of bisulphate; where a milder type of malaria prevails a daily dose of 20 centigrammes (3 grains) is sufficient; and where the fever is extremely light it is better to restrict the use of quinine to the inhabitants of houses where a case of primitive or recidivous infection has actually occurred. Mechanical prophylaxis continues to manifest its value. Mixed prophylaxis—i e., a combination of mechanical protection against the anopheletes along with the use of quinine—is, however, now the rule along all the railway lines and is also being adopted largely for the protection of workers engaged in agricultural operations and industrial enterprises in the rural districts. As to exterminating the mosquito, the difficulty, or, rather, in Italy the impossibility, of accomplishing this becomes more than ever obvious.

It is encouraging to learn from this instructive report that, in localities where members of the Society for the Study of Malaria have been working steadily for the last three or four years, the peasants begin to show an eagerness to obtain quinine and, without any incitement being any longer necessary on the part of their medical men, to endeavour of their own accord to protect themselves against malarial infection.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

New Sanitary Regulations.

IN many parts of the country bakers are in the habit of wetting the dough before baking with a sort of broom made of straw or hay. Such straw brooms are likely to contain the germs of actinomyces, and some cases which have occurred make it probable that bread treated in this manner may be the means of transmitting such germs to man. The Minister of the Interior has therefore ordered a closer inspection of bakehouses in rural districts, and a warning has been issued against using brooms of that description for the purpose in question. If for any reason there is no substitute available, the brooms must be sterilised by boiling in water for half an hour and drying in the sun. Remembering the good effects of the leaflets distributed at the time of the epidemics of cerebro-spinal meningitis, the authorities have prepared and distributed in all the provincial bakehouses a similar leaflet describing the symptoms of actinomycosis and the methods of infection. The Minister of the Interior has also caused the regulations concerning the colouring and adulteration of food to be revised, and some colouring materials, such as the aniline dyes which modern chemistry can manufacture free from all admixture of arsenic or lead, will not henceforth be placed on the list of poisonous substances. The official list of colours and dye-stuffs regarded as poisonous now includes substances containing antimony, arsenic, picric acid, mercury, copper, chromium, and lead. Lead is sometimes employed by manufacturers of black silk and hosiery to increase the weight of the fabric, and this metal is frequently present in cosmetic lotions and preparations of that class. Such articles are now liable to be seized if they are intended for human use within the limits of the Austrian Empire.

The University of Vienna.

The medical faculty of the University of Vienna will in a short time lose four of its professors in consequence of the old regulations requiring that all professors and clinical teachers shall retire from their posts on reaching the age of 70 years. Of those who are therefore about to relinquish their chairs, Professor Adam Politzer is perhaps the best known. He will take advantage of the "bonification" permitted by the law, which entitles a professor to occupy his chair for one year more, the so-called "honorary year," after his seventieth birthday, and will accordingly during the session 1906–07 continue his celebrated courses on otology, which are conducted in the English language, if a sufficient number of his audience request it. The other teachers on the point of retiring are Professor Stoffella d'alta Rupe, who does not intend to apply for the honorary year, Professor Winternitz, and Professor Benedikt. Professor Winternitz is the Nestor of modern hydro-therapeutists and to him belongs much of the credit of having given hydrotherapy the position which it holds among modern means of treatment. Professor Benedikt is well known, even beyond German-speaking medical circles, for his investigations on the brain of mammals and for his treatise on the diseases of nerves. An original thinker, he has frequently denounced routine methods in the teaching of medicine and recommended a more individualistic system both in training students and in making appointments to medical posts.

Post-Graduate Study.

The summer term at the University closes at the end of July, but during August and September most of the assistants and several professors who remain in town will deliver post-graduate courses on certain selected subjects. The intention of these classes is to provide practical and theoretical instruction for practitioners who are desirous of keeping themselves informed as to the most recent advances in medicine and surgery, and the classes are naturally held at the time of year when these gentlemen can most easily be away from home. Operations on the abdomen and the genital organs, bacteriology, experimental pathology, and diagnosis are the leading features of the courses, whilst a number of other subjects, such as diphtheria, the use of mirrors, anomalies of refraction, &c., will be lectured upon if sufficient entries are obtained. The fees for such courses, lasting for four weeks, are usually from £2 2*s*. to £4 4*s*., and practical work is facilitated by limiting the number of those admitted to the various classes.

The Annual Report of the Policlinic.

The Policlinic, like the General Hospital, is in various respects under the control of the medical faculty of the University. Its thirty-ninth report dealing with the events of the year 1905 has just been published and contains many interesting details. In 1905 there were 67,000 out-patients and 2247 in-patients, whereas in 1880 there were only 80 in-patients and 12,000 out-patients. During its existence 1,430,000 patients have been treated in both departments. In 1905 there were 119 children admitted to the diphtheria wards and 112 received serum injections. The diphtheria mortality was only 3·3 per cent., which is a great reduction as compared with the results obtained in former years. Previously to 1894 the diphtheria mortality was from 30 to 40 per cent. and the subsequent fall is a convincing proof of the efficacy of serum treatment. By the munificence of very high personages the institution has been able to obtain a considerable quantity of radium bromide, which has been employed chiefly in diseases of the skin and also in the treatment of mucous cancer. Among the in-patients the death-rate was 6 per cent. and among those operated upon it was 9½ per cent., children excluded.

A Series of 1000 Cases of Medullary Anæsthesia.

At a meeting of Croatian practitioners held recently in Vienna Dr. Schwarz read a very interesting paper on the results of 1000 injections of tropacocaine into the spine for surgical purposes. He has for the last four years employed the above-mentioned alkaloid, which gives him better results than either cocaine or stovaine. By very careful attention to the dose, which in no case exceeded 0·06 gramme (= 1 grain), and by taking the precaution of dissolving the alkaloid in ten cubic centimetres of the cerebro-spinal fluid of the patient, he never had a fatal result, and only in very exceptional cases were there any unpleasant after-effects such as nausea, headache, pyrexia, or collapse. The frequency of headache as an after-effect in the experience of previous observers has been explained on the ground that water, even when distilled, has a toxic action on the spinal and cerebral tissue. The modified process in which cerebro-spinal fluid is substituted for water as the solvent of the alkaloid is therefore a great improvement. If the operation was one requiring a long time for its performance Dr. Schwarz elevated the patient's pelvis so that a larger area of the spinal medulla was bathed in the solution. The place of injection was, as usual, between the fourth and fifth lumbar vertebræ. All kinds of operations on the lower half of the body below the umbilicus were performed under this analgesia, only in opening the abdomen the time of analgesia is limited to about one hour; the other parts of the body within the region specified, including the legs, perineum, bladder, and rectum, remain insensitive for two or three hours. Up to the present time about 3000 operations of this kind have been recorded without any fatal result due to the spinal injection.

August 11th.

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates satisfied the examiners:—

M.S. EXAMINATION.

Thomas Percy Legg, King's College and St. Bartholomew's Hospital; William Paynter Noall, Royal Infirmary, Manchester, and London Hospital; and William Gordon Taylor, B.Sc., Middlesex Hospital.

PRELIMINARY SCIENTIFIC EXAMINATION.

PART I.—INORGANIC CHEMISTRY, EXPERIMENTAL PHYSICS, AND BIOLOGY.

Inorganic Chemistry, Experimental Physics, and Biology.—Thomas Beaton, University College, Cardiff; Sydney Guy Billington, University of Birmingham; Gilbert Alan Blake, Guy's Hospital and University Tutorial College; George Francis Bradley, London Hospital; Gertrude Brooks, London (Royal Free Hospital) School of Medicine for Women; Joseph Henry Campain, University of Liverpool; John Warren Clouston, London Hospital; Gertrude Margaret Dobrashian, London (Royal Free Hospital) School of Medicine for Women; Robert Joel Cazalet Douty, Middlesex Hospital; Basil Franklin Eminson and Ralph Franklin Eminson, Epsom College; David Benjamin Evans, University College, Cardiff; James Maurice Foord, University of Leeds; Abdul Hamid Gool, Guy's Hospital; Alexander Keith Hamilton, University of Liverpool; Reginald Gordon Hill, St. Bartholomew's Hospital; Herbert Leslie Hopkins, Guy's Hospital; Charlotte Leighton Houlton, London (Royal Free Hospital) School of Medicine for Women; Charles Dones Killpack, Guy's Hospital; William Balfour Laird and Martin Wentworth Littlewood, St. Thomas's Hospital; Gerald Roche Lynch, St. Mary's Hospital; Roy Kyffin Mallam, Epsom College; Edith Marjorie Martland, Hulme Grammar School, Oldham; Henry Linnington Martyn, King's College School and private tuition; John Park Mathie, University of Glasgow; Ernest Spencer Miller, University of Liverpool; Stella Myers, Girton College, Cambridge, and London (Royal Free Hospital) School of Medicine for Women; Alfred Arthur Edmund Newth, Epsom College; Joan Fraser Parker, London (Royal Free Hospital) School of Medicine for Women; Sara Louisa Penny, University College, Bristol; James Potter, London Hospital; Thomas William Watkin Powell, Epsom College; Walter Woodall Pratt, University College, Bristol; Ffrangcon Roberts, Epsom College; Douglas Ross and Frederic Sanders, London Hospital; William Henry Price Saunders, Epsom College; Charles Frank Schuler, St. Thomas's Hospital; Emmanuel Prinski Scott, London Hospital; F. R. Bradley Skrimshire, St. Thomas's Hospital; Geoffrey Troughton Smith, Alleyn's School, Dulwich, and Birkbeck College; Reginald Gershom Sparkes, St. Mary's Hospital; Mildred Blanche Stogdon, London (Royal Free Hospital) School of Medicine for Women; Richard Trevor Vivian, Epsom College; Harry Bertram Walker, London Hospital; George Edgar Septimus Ward, Epsom College; Harold Percy Warner, Guy's Hospital; and Roger Michael Wright, University College, Bristol.

Inorganic Chemistry and Experimental Physics.—*Richard Frank Bolt, University College, Bristol; Florence Hilda Bousfield, London (Royal Free Hospital) School of Medicine for Women; Andrew John Chillingworth, St. Bartholomew's Hospital; *Herbert William Cooke, University College, Bristol; Richard Stanley Dowell, University Tutorial College; *Thomas Peters Edwards, St. Bartholomew's Hospital; James Moncrieff Joly, Cheltenham College; Francis Harry Kelly, Middlesex Hospital; Joseph Howell Lloyd, private study; Ernest Mannering Morris, Whitgift School, Croydon; *Camilo Antonio Prada, St. Bartholomew's Hospital; Aneurin Evan Roberts, Towyn County School; Harold Rowntree, Middlesex Hospital; and *John Eric Wood, Hartley University College.

Inorganic Chemistry and Biology.—Albert James Clarke, St Bartholomew's Hospital; ‡John Henry Cobb, University of Sheffield; ‡James Anthony Delmege, Guy's Hospital; Walter Armstrong Elliott, University of St. Andrews; William Reginald FitzHugh, St. Thomas's Hospital; Stuart Leighton Heard, London Hospital; ‡Cyril George Hewett, University College; George Ashby Hooton, St. Bartholomew's Hospital; ‡Harold Arundel Moody, King's College; ‡Alexander George Hains Moore, Guy's Hospital; William Geoffrey Shaw, London Hospital; William Henry Vincent, St. Mary's Hospital; and Godfrey Alan Walker, Epsom College.

Experimental Physics and Biology.—Alured Charles L. O'S. Bilderbeck, St. Bartholomew's Hospital; Frederick Hyland Bowen, Victoria University and private study; Arthur Barrett Cardew, Epsom College; †Herbert Davies, Guy's Hospital, University Tutorial College, and Birkbeck College; Lionel Hugh Knightley Finch, University of Birmingham and Birmingham and Sutton Coldfield Technical Schools; Vincent Glendining, Guy's Hospital; Robert Hamer Hodges, King's College; Gerald Laurence, Epsom College; George FitzPatrick Rigden, King's College and Westminster Hospital; Francis Richard Todd, St. Bartholomew's Hospital; Victor David Collins Wakeford, Birkbeck College; and Harvey Henry Vincent Welch, St. Thomas's Hospital.

Inorganic Chemistry only.—*‡Herbert Stuart Blackmore, University College; George James Bowen and *‡Tudor David Bowen, University College, Cardiff; *‡George Bent Buckley, Victoria University; *‡Noel Hawley M. Burke, King's College; *‡Alfred Bernard Clark, University of Sheffield; *‡Wilfrid M. Glenister, St. Bartholomew's Hospital; Christopher Martin Ingoldby, London Hospital; *‡W. H. Talfourd Jones, Guy's Hospital; John Edward Kitchen, University of Leeds; *‡Geoffrey Marshall, University Tutorial College; *‡Victor Ewings Negus, King's College; *‡Bernard Rayne Parmiter, University College, Nottingham; *‡Ernest Gerald Stanley, St. Bartholomew's Hospital; *‡James Simpson Strachan, private tuition; *‡Ernest Alfred Tozer, London Hospital; *‡Arthur B. Guy Underwood, Birkbeck College; and *Samuel Wilson, Guy's Hospital.

Experimental Physics only.—Gordon Covell, Guy's Hospital; Israel Feldman, City of London School; George Barrowclough Horrocks, Victoria University; Maurice Mackenzie, London Hospital; Percy James Montgomery, Middlesex Hospital; Ralph Herbert Nankivell, Epsom College; *†Ambrose Owen, University College, Cardiff; Herbert T. Retallack-Moloney, City of London School; *Pestanji Manekji Masina, University College; Walter Salisbury, University College, Bristol; *Louis Bruce Stringer, Guy's Hospital; Aubrey William Venables, University Tutorial College; *†Bernard Thomas Verver, Guy's Hospital; and Emily Josephine H. Wallace, The Polytechnic and University Tutorial College.

Biology only.—Carlyle Aldis, Guy's Hospital; John Appleyard, University of Leeds; William Stuart Armitage, St. Mary's Hospital; †‡Margaret Mary Basden, London (Royal Free Hospital) School of Medicine for Women; †‡Cyril Carlyle Beatty, Durham College of Medicine and Armstrong College of Science; †‡Irene Nancy Clough, London (Royal Free Hospital) School of Medicine for Women; ‡Eric Crosby T. Clouston, University College and London Hospital; †‡Eliezer Coplans, University College; †‡Edward G. H. Cowen, Charing Cross Hospital and private study; Edwin Evans, University of Leeds; †‡Manchersha Dhanjibhai Dorabji Gilder, University College, St. Xavier's College, and Grant Medical College, Bombay; Philip Withers Green, Epsom College; Frederick Wood Hamilton, Middlesex Hospital; Thomas Herbert Holroyd, University of Birmingham; †‡Augustine Henry Hudson University Tutorial College; Frank Cornwell Hunot, Guy's Hospital; Adolphus Pinto Leite, University College, Birkbeck College, and private study; Margaret Josephine McEnery, University Tutorial College, Birkbeck College, and private tuition; Dalton Mallam, London Hospital; †‡Hannah Grace Morland, London (Royal Free Hospital) School of Medicine for Women; Dossibai Rustomji C. Patell, University College; Cresswell Lee Pattison, St. Mary's Hospital; Francis Henry Balfour Percival, St. Bartholomew's Hospital and University Tutorial College; †‡Edward Gordon Reeve, Royal Albert Memorial College, Exeter, and Guy's Hospital; Theodore Essex Roberts, Guy's Hospital; Henry Ellis Robinson and Clement Kirwan Sylvester, St. Bartholomew's Hospital; †‡Alan Hempath Todd, Guy's Hospital; John Tremble, St. Bartholomew's Hospital; †‡Francis Silvanus Williams, University College, Cardiff; and †‡Mary Woods, Dublin School of Medicine.

* Already passed in biology.
† Already passed in inorganic chemistry.
‡ Already passed in experimental physics.

PART II.—ORGANIC CHEMISTRY.

John Wroth Adams, St. Bartholomew's Hospital; Francis Cooke Alton, St. Thomas's Hospital and Plymouth Technical Schools; Frederick Jasper Anderson, St. Bartholomew's Hospital; Richard William Annison, Middlesex Hospital; Kathleen Jane Armstrong, London (Royal Free Hospital) School of Medicine for Women; Edwin A. Attenborough, London Hospital; Richard Pitt Ballard, Guy's Hospital; Cyril Banks, University of Sheffield; Alfred David Eldred Bayliss and Joseph Dudley Benjafield, University College; Benjamin Bernstein, London Hospital; Claude Alexander Birt, University College; Kenneth C. Bomford, St. Bartholomew's Hospital; Kenneth J. C. Bradshaw, University of Liverpool; Basil William Brown, King's College and Birkbeck College; Hugh Leonard Burton, King's College and private tuition; Henry William Carte, Guy's Hospital; Alfred Ernest Dagnall Clark, St. Bartholomew's Hospital; William Edmund Crowther, University of Leeds; Hazel Haward Cuthbert, London (Royal Free Hospital) School of Medicine for Women; William Allen Daley, University of Liverpool; Frederick Adolph Dick and Geoffrey Dunderdale, Guy's Hospital; William Henry Dupré, St. Bartholomew's Hospital; Emile Marc A. Duvivier, Guy's Hospital; Arthur Oxley English, Middlesex Hospital; Robert Noel Farrer, University of Leeds; Frances Jane Freston, London (Royal Free Hospital) School of Medicine for Women; Harold Gardiner, Guy's Hospital; Thomas Woodcock George and Charles Gibson, London Hospital; Manchersha D. D. Gilder, University College and Grant Medical College, Bombay; Katherine Anne Gill, London (Royal Free Hospital) School of Medicine for Women; Charles D'Oyly Grange, University of Leeds; Alice Mary Ley Greaves, London (Royal Free Hospital) School of Medicine for Women; Douglas Green, University of Sheffield; Henry James Hacker, St. Bartholomew's Hospital; Arthur William Havard, University College, Cardiff. Guy Reginald Hind, Guy's Hospital; Gordon Victor Hobbs, St. Mary's Hospital; Harrie M. Hood-Barrs, London (Royal Free Hospital) School of Medicine for Women; Edward Leslie Hornburgh and Geoffrey Jefferson, Victoria University; Cecil Augustus Joll, B.Sc., University College, Bristol, and private study; Charles Douglas Kerr, St. Bartholomew's Hospital; Norman Claudius Lake, Plymouth Technical Schools; Peregrine S. B. Langton, Middlesex Hospital; Manly McWhinnie Lopez, University College Bristol; Mary Frances Lucas, London (Royal Free Hospital) School of Medicine for Women; Kenneth D. Marriner, St. Thomas's Hospital; Guy Matthews, King's College; George Martel, Guy's Hospital; Bernard Courtauld Maybury, St. Thomas's Hospital; Mendel Mayers, London Hospital; James Menzies, St. Mary's Hospital; Adrian Leonard Moreton, St. Bartholomew's Hospital; Hannah Grace Morland, London (Royal Free Hospital) School of Medicine for Women; Richard Naunton O. Morgan, University College, Cardiff; Gerald Thomas Mulally, Guy's Hospital; Stella Myers, Girton College, Cambridge; George Edmund E. Nicholls, Victoria University; William Marshall Oakden, Nottingham High School; Henry Brice Parker, University College, Bristol; Willie Howarth Parkinson, Victoria University; William Henry Parr, London Hospital and University Tutorial College; Mary Minnie Patterson and Cicely Mar Peake, London (Royal Free Hospital) School of Medicine for Women; Edward Austen Penny, Guy's Hospital; Wilfred Langrish Pink, St. Thomas's Hospital; Harry Platt, Victoria University; Henry Martin Rashbrook, London Hospital; Morna Lloyd Rawlins and Maude Margaret Richards, London (Royal Free Hospital) School of Medicine for Women; Edward Hesketh Roberts, University College; Arthur Leyland Robinson, University of Liverpool; Cecil John Rogerson, University College; Richard Alun Rowlands, University College Bangor; Mary Schofield, London (Royal Free Hospital) School of Medicine for Women; Clement Edward Shattock, University College; Charles Woolley Shepherd, University College, Cardiff; Bernard Sangster Simmonds, Middlesex Hospital; Elliott John Storer, St. Bartholomew's Hospital; Robert Stout and Thomas Duncan M. Stout, Guy's Hospital; James Simpson Strachan, London Hospital and private tuition; Norman Tattersall, Victoria University; John Bailey Tackaberry, Middlesex Hospital; George Taylor, London Hospital; Leonard Herbert Taylor, Charing Cross Hospital and private study; Gottfried Oram Teichmann, Middlesex Hospital; Graham Yalden Thomson, Guy's Hospital and private tuition; Daniel Owen Twining and Edward Wing Twining, University College; Ernest White, St. Bartholomew's Hospital; Theodore H. Whittington, King's College; and William Wilson Woods, London Hospital.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

LONGEVITY.—Mrs. Isaac Needs of Brent Knoll celebrated the 100th anniversary of her birthday on July 6th, when she was the recipient of many congratulations.

THE ROYAL SANITARY INSTITUTE.—The forty-second course of lectures and demonstrations for sanitary officers will be held at the Parkes Museum, Margaret-street, Regent-street, London, W., during September, October, and November. The course is divided into two parts. Part I. comprises four lectures on elementary physics and chemistry and 21 lectures on public health statutes, the practical duties of a sanitary inspector, hygiene of communities, and building construction; inspections and demonstrations will also be arranged in connexion with the lectures and will include visits to disinfecting stations, dairy premises, common lodging-houses, refuse and sewage disposal works, and other public and private works illustrative of sanitary practice and administration. Part II. comprises seven lectures on meat and food inspection and practical demonstrations of meat inspection are given. The fee for Part I. is £2 12*s.* 6*d.*, for Part II. £1 1*s.*, or for the complete course £3 3*s.* The tenth course of practical training for meat inspectors will commence on Sept. 21st and will continue for two months. In addition to the practical training at a market the course will include seven lectures delivered at the Parkes Museum. The fee for the complete course will be £3 13*s.* 6*d.* A course of lectures on Hygiene in its Bearing on School Life will commence on Sept. 17th and will continue to Nov. 9th. It will consist of lectures and practical demonstrations on personal hygiene, school buildings, and school equipment. A fee of 5*s.* will be charged for the course. These lectures are intended to assist teachers and others interested in the training of children and the structural conditions of schools. Examinations on various subjects will be held by the institute in London on Dec. 7th, 8th, 14th, and 15th.

BOOKS, ETC., RECEIVED.

APPLETON, SIDNEY, London.

Modern Clinical Medicine. Diseases of Metabolism and of the Blood. Animal Parasites. Toxicology. Edited by Richard C. Cabot, M.D., Instructor in Clinical Medicine in the Medical School of Harvard University. An authorised translation from "Die Deutsche Klinik," under the general editorial supervision of Julius L. Salinger, M.D. Price 21*s.* net.

Diseases of the Nervous System resulting from Accident and Injury. By Pearce Bailey, A.M., M.D., Clinical Lecturer in Neurology, Columbia University, New York City; Consulting Neurologist to the Roosevelt, St. Luke's, and Manhattan State Hospitals, &c. Price 21*s.* net.

A Text-book of Botany. For Secondary Schools. By John M. Coulter, A.M., Ph.D., Head of Department of Botany, the University of Chicago. Price 5*s.* net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, London, W.C.

Applied Bacteriology. An Elementary Handbook for the Use of Students of Hygiene, Medical Officers of Health, and Analysts. Revised and edited by Cressacre G. Moor, M.A. Cantab., F.I.C., formerly Public Analyst for Exeter, and Senior Demonstrator in Public Health, King's College, London, with the coöperation of Richard Tanner Hewlett, M.D., F.R.C.P., D.P.H., Professor of Bacteriology, King's College, London, formerly Bacteriologist to the Lister Institute. Third edition. Price 12*s.* 6*d.* net.

Questions and Answers on Nursing for the St. John Ambulance Associations and Others. By John W. Martin, M.D., of Sheffield, Hon. Acting Medical Officer to the Jessop Hospital for Women, Sheffield; Examiner and Lecturer to the St. John Ambulance Association; Hon. Sec. to the Sheffield Centre. Fifth edition. Seventeenth thousand. Price 1*s.* 6*d.* net.

Aneurysm of the Abdominal Aorta. Being a Dissertation for the Degree of Doctor of Medicine in the University of Oxford. By Frederick Pitcairn Nunneley, D.M., M.A., Brasenose College. Price 3*s.* 6*d.* net.

BLAKELEY, E. H., 11, Adam-street, Strand, London, W.C.

Uterine Fibroids and other Pelvic Tumours. By Bedford Fenwick, M D., Gynæcologist to the Hospital for Women, Soho square; formerly Senior Assistant Physician to the City of London Hospital for Diseases of the Chest. Price 3*s.* 6*d.*

CHURCHILL, J. AND A., 7, Great Marlborough street, London, W.

A Manual of Midwifery. By Thomas Watts Eden, M.D., C.M. Edin., F.R.C.P. Lond.; Assistant Obstetric Physician and Lecturer on Practical Midwifery, Charing Cross Hospital; Physician to Out-patients, Queen Charlotte's Lying-in Hospital; Physician to In-patients, Chelsea Hospital for Women; Examiner in Midwifery and Diseases of Women at the Conjoint Board of the Royal Colleges of Physicians and Surgeons. Price 10*s.* 6*d* net.

A System of Dental Surgery. By the late Sir John Tomes, F.R.S, Corresponding Member of the Philadelphia Academy of Natural Sciences; late Dental Surgeon to the Middlesex and Dental Hospitals. Fifth edition. Revised and enlarged by Charles S. Tomes, M.A., F.R.S; late Lecturer on Dental Anatomy and Physiology to the Royal Dental Hospital of London, and Walter S. Nowell, M.A. Oxon., Assistant Dental Surgeon, Middlesex Hospital. Price 15*s.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BOOTH, LIONEL HETHORN, M.R.C.S. Eng., L R.C P. Lond., has been appointed House Surgeon at the Sunderland Infirmary.

HARRISON, JAMES MCKEAN, M B., B Ch., B.A.O. R U.I., has been appointed Medical Officer to the Workhouse by the Ledbury (Herefordshire) Board of Guardians.

HOLLAND, EARDLEY L., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Assistant Resident Medical Officer to Queen Charlotte's Lying in Hospital, London.

LYSTER, ROBERT ARTHUR, M B., Ch.B., B.Sc. Lond., D.P.H., B Sc, has been appointed Medical Officer of Health to the Urban District of Handsworth (Staffs).

MORRISON, J. W H., M.B., B S. Durh, has been appointed Certifying Surgeon under the Factory and Workshop Act for Blaydon-on Tyne District of the county of Durham.

SELLS, H. LANCELOT, M.B., Ch.B. Edin, has been appointed House Surgeon to the Hartlepools Hospital, Hartlepool.

TAGGART, WILLIAM JOHN, M.B., Ch B. Edin, has been appointed Resident Medical Officer to the Victoria Hospital, Burnley.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN CITY DISTRICT LUNACY BOARD, KINGSEAT LUNATIC ASYLUM.—Medical Superintendent. Salary £500 per annum, with house.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

BUXTON, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CARDIFF, ROYAL HAMADRYAD SEAMEN'S HOSPITAL.—Medical Superintendent. Salary £250 per annum, with residence, firing, and light.

CHESTER GENERAL INFIRMARY.—*House Physician. Salary £90 per* annum, with residence and maintenance.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Senior House Surgeon. Salary £120 per year, with board, apartments, and laundress.

COLCHESTER, ESSEX AND COLCHESTER GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, washing, and residence.

COTFORD, TAUNTON, SOMERSET AND BATH ASYLUM.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, and attendance.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £140, rising to £180, with board, lodging, &c.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer for the Casualty Department for six months, renewable. Salary at rate of £100 per annum, with luncheon.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Third House Surgeon. Salary £50 per annum, with board, washing, and residence.

EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION.—*Professor of Midwifery and Gynæcology.* Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £120, without board (or £80, with board).

KINGSTON-UPON-HULL, SANATORIUM AND EVAN FRASER (SMALL-POX) HOSPITAL.—Resident Medical Officer, unmarried. Salary £200 per annum, with residence, board, and washing.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—Two House Surgeons and a House Physician. Salary £60 each per annum, with residence and maintenance.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Physicians and One House Surgeon. Salaries at rate of £60 per annum, with board and residence.

LONDON SCHOOL OF TROPICAL MEDICINE.—Craggs' Research Prize, value £50.

LONDONDERRY AND NORTH-WEST OF IRELAND EYE, EAR, AND THROAT HOSPITAL.—Honorary Surgeon.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MIDDLESEX HOSPITAL, W.—Second Assistant to the Director of the Bacteriological and Clinical Laboratories. Salary £100 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST Hampstead and Northwood.—Resident Medical Officer. Honorarium £50 per annum, including board, lodging, &c.

NORTHAMPTON GENERAL HOSPITAL.—House Physician, unmarried. Salary £90 a year, increasing to £100, with apartments, board, washing, and attendance.

PORTSMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £120, rising to £150, with board, lodging, and washing.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer, unmarried. Salary £130, with board, residence, attendance, and washing.

ST. HELENS COUNTY BOROUGH.—Assistant Medical Officer (female). Salary £160 per annum, rising to £200.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta street, Covent Garden, W C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

SALISBURY, FISHERTON ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, and washing.

SHIPSTON-ON STOUR UNION.—Medical Officer for the Mickleton District. Salary £50 per annum and fees.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with rooms, board, and washing.

STAFFORDSHIRE COUNTY COUNCIL (Midwives Act, 1902).—Woman Inspector. Salary £120, rising to £150 per annum, with travelling expenses.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

WARRINGTON UNION WORKHOUSE.—Resident Medical Officer, unmarried. Salary £130 per annum, with apartments, rations, and allowances.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

YORK COUNTY HOSPITAL.—House Physician. Salary £100 per annum, with board, residence, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

FLEMING.—On August 7th, at Chester-street, Edinburgh, the wife of Robert A. Fleming, M.D., F.R C.P. Edin., of a son.

HEDLEY.—On August 14th, at 56, *Hans-place, S.W., to Dr.* and Mrs. Edward Hedley a son.

KENDALL.—On August 10th, at *Chiddingfold, Surrey*, the wife of Nicholas Fletcher Kendall, M.R.C.S., L.R.C.P., *of a daughter.*

SLADEN.—On August 7th, at *Talbot-road*, Highgate, the wife of Reginald J. Lambart Sladen, M.R.C S. L.R.C P., of a son.

WALES.—On August 14th, at Mevell Hall, Gargrave-in Craven, the wife of Herbert Wales M.A., M.B. B.C., of a son.

WICKHAM.—On August 9th at Willesborough, Ashford, Kent, the wife *of* Charles A. Wickham, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

BUCHANAN—HUDSPITH.—On August 11th, at the Church of the Holy Cross, Haltwhistle, Northumberland, Walter Isaac Buchanan, M.B., *to Harriet Louisa*, third daughter of the late County Alderman Hudspith, J.P., and Mrs. Hudspith, of Greencroft, Haltwhistle.

FRASER—JOHNSON.—On August 14th, at Hexham, Lachlan Fraser, M D., *of North* Shields, to Annie, younger daughter of the late John Johnson, Cote House, Blanchland.

SCOTT—SECHERAU.—On August 8th, at St. Mary Abbots, Kensington, Lindley Scott, M.A., M.D, M.R C.P., to the *Baroness Gertrude* von Schmidt Secheran, youngest daughter of Mrs. George Meakin of Creswell Hall, Stafford.

DEATH.

KALAPESI.—On July 16th, at Frere-road, Fort, Bombay, Dr. R. M. Kalapesi, M.B. Lond., *D.T.M.* Camb., M.R.C.S., &c., in his 37th year, of tuberculosis.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

TOUTING AGENCIES.

VARIOUS righteously indignant medical correspondents have forwarded to us the circular which we here reprint:—

THE EBOR EDUCATIONAL AGENCY, YORK.

August 9th, 1906.

DEAR SIR,—A friend of ours has handed your name to us and as we have many doctors in different parts of the country now acting for us we shall be pleased to know if you care to interest yourself in the following suggestion, which can be carried out without any additional trouble or expense to yourself. We are Agents for most of the best private schools in England, also several on the Continent. Our business is to introduce pupils to these schools and our desire is to use the best means possible to find pupils. All we wish you to do is when on your daily rounds to ascertain (in the ordinary course of conversation, without letting the parents think you are interested in the matter) whether they are likely to be sending their sons or daughters away to school and to forward their names to us, together with any other particulars you can give us. *That is all we require you to do.* Your name does not, *in any way*, transpire in the matter, unless in cases where you think it advisable. We then take the matter up and for every pupil we place at a school through your introduction we give you one guinea.

Yours truly,
THE SECRETARY.

The circular is in the usual style of the quack touting pamphlet. There is the unnamed friend who "has handed your name to us." There are also the unnamed "doctors in different parts of the country now acting for us." There is the bribe, in this case only one guinea, whereas in a recent application of the kind we quoted it was three. Modern developments of the commercial spirit reveal an uncomplimentary ignorance on the part of the advertisers as to the status of the medical profession. Sometimes the advertisement wishes the medical man to tout for cigars, sometimes for medicated wines, sometimes for quack medicines which purport to cure anything and everything, and the most disgusting feature of the matter is the habit that the proprietors of these wares have of asserting that they already keep members of the medical profession in their pay. We do not for one moment believe that the Ebor Educational Agency has any medical men acting for it; and the whole tone of the circular is such as to suggest that any parent who employed the agency with regard to the education of his child would be exceedingly foolish.

A QUESTION OF ETHICS.

To the Editors of THE LANCET.

SIRS,—Would you be kind enough to adjudicate on the following? A patient X sends for A to attend her. He does so and after a few weeks brings his partner B to see her. Later, the patient requests that C should be called in consultation. C's methods are such that A declines to meet him. A then says that he will meet any other practitioner she likes to suggest. Finally, she selects D who accordingly sees the patient with A. Some weeks later A is about to take his holiday and informs the patient that his partner B will attend her. X then writes to say that she does not wish A to come any more and that she will send for another doctor. Her father approaches D who at first refuses. D is informed that if he does not attend C will be called in. D attends her, and writes to A saying that, when he was informed X desired C's attendance in case of his (D's) refusal, he reluctantly consented. He asked A's approval. A thanked D for his letter but stated that he strongly disapproved of him attending the patient after having seen her in consultation. D, however, continued to attend, and without any further communication to A. Was D justified in his action?

am, Sirs, yours faithfully,
"A."

August 11th, 1906.

*** The situation has been discussed before—indeed, it is a sort of test point in medical ethics. We have in medical ethics to consider the public for whom the medical profession works, as well as the conditions under which that work can best be done. X, as a member of the public, has a right to the advice of whatever medical man she may choose, and no medical man can object to that right being exercised. X was therefore clearly at liberty not to employ A and to make overtures to D. But D was placed in a dilemma thereby. A medical man introduced to a patient by another medical man as a consultant should never, or almost never, continue in attendance on the case. The rule is for the public good. Medical men gladly afford their patients the advantages of consultation, but do so with the understanding that they will not be supplanted. In this instance D was informed that A would, at any rate, lose the patient, and so he considered himself free to attend her. The argument is a strong one, and if D had been a rival practitioner merely it would have been sufficiently strong. But D was, apparently, actually introduced to the patient by A, and should not, we think, have listened to any proposal whatever to take A's place without A's leave. But we cannot understand why A withheld his leave. He was, at any rate, to lose the case, and if D did not attend it the patient proposed to call in C, concerning whom A had taken a very extreme step. For it is most unusual for one medical man to refuse to meet another in consultation. The patient was within her rights to wish to see C, and A could only have denied C's aid to her upon some very good grounds. But if C's methods were likely to be dangerous to the patient while A was by her bedside, how much more dangerous would they be if C were in sole attendance. From that risk D seems to have saved her, and A should not resent it.—ED. L.

THE ACCIDENT ON HANDCROSS HILL.

THE inquest on the bodies of the persons killed in the accident due to the wrecking of a motor omnibus on Handcross Hill on July 12th came to an end on August 7th, when the jury found a verdict of "Accidental death." They also found that the accident was caused by a breakage of machinery brought on by the efforts of the driver to check the speed of the omnibus when he found that he was going too fast and considered that the driver committed an error of judgment in allowing the omnibus to go at too high a speed. They held no one criminally responsible but they were strongly of opinion that this type of omnibus was unsuitable for use on country roads. We think that this is a verdict with which nobody can quarrel, more especially with the last clause of it. Nearly all the motor omnibuses, which are seen about the streets now, have been brought into use while they are still really in an experimental stage, and many of them, owing to the noise the vibration, and the evil-smelling fumes which they emit, are unfit for use on any road of any kind. Two statements made in evidence are worth notice. Mr. William Worby Beaumont, technical adviser to Scotland Yard, in answer to a question by Mr. Morse, who appeared for the Society of Motor Manufacturers and Traders, said that he considered that roads like that of Handcross Hill were extremely unsafe for the traffic of to-day and that there was no excuse for leaving a road in such a state. Mr. Reginald William James, consulting engineer, gave it in his evidence that in his opinion for journeys in country districts where declivities were sharp, emergency brakes entirely independent of the transmission gear were a proper provision for the safety of the passengers. With regard to Mr. Beaumont's evidence, most country roads, in the southern counties at all events, in dry weather are loose and awkward for traffic. We do not think that authorities can be expected to provide roads for the modern motor omnibus, at any rate, for that type of it which is presumably constructed for town use, and is admittedly only constructed in an experimental manner. As to brakes entirely independent of transmission gear, these, to our minds, should be made compulsory upon every description of mechanically propelled vehicle.

MEDICAL ATTENDANCE ON MEDICAL STUDENTS.

To the Editors of THE LANCET.

SIRS,—Could you give me any information on the subject of fees charged to medical students for professional attendance by qualified medical practitioners? On several occasions when staying in various parts of England I have had to call in a medical man, and although I always ask for the bill to be sent in (as a matter of form as I have now come to consider it), I have never come across any medical man who would allow me to pay him for his services. I know, however, of more than one student who has been charged for professional attendance, and I conclude from this that the question of charging or not is one that each practitioner settles for himself.

I should be very glad if you could tell me if medical students have any *right*, in virtue of their calling, to free medical attendance, or whether it is a case of good nature on the part of most medical practitioners. I inclose my card and remain,

Yours faithfully,
MEDICAL STUDENT.

August 11th, 1906.

*** No one, medical practitioner or medical student alike, has any legal or unassailable right to gratuitous medical advice. Medical men, as a matter of fact, always do treat without charge other medical men and their families, and some medical men extend the privilege to medical students. This is a matter for the individual discretion of the medical man, but the pecuniary circumstances of the student, or his relations to the medical man, generally determine the course to be pursued. There is no reason why a medical practitioner should not charge a medical student, being in a good pecuniary position and a stranger, fees for professional assistance; but no medical man would accept fees from a medical student if the student was in poor circumstances, or was known to him personally, or was a pupil of the same medical school.—ED. L.

HIGH-POWER MICROSCOPY.

IN THE LANCET of July 11th, 1903, p. 116, we described the principal features of the microscope devised by Dr. Siedentopf in which "ultra-microscopical" particles of gold disseminated through ruby glass are rendered visible. The magnifying lenses are similar to those employed in ordinary high power work; the peculiar effects which have led to the instrument being called the ultra microscope are due to the illumination of the object by an intense beam of light directed at right angles to the axis of the optical system. No details of form or structure can, however, be made out in this way, the objects appearing merely as brilliant points seen against a dark background.

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Address in Medicine

ON

THE CIRCULATION VIEWED FROM THE PERIPHERY.

Delivered at the Seventy-fourth Annual Meeting of the British Medical Association on August 22nd, 1905,

By SIR JAMES BARR, M.D. GLASG., F.R.C.P. LOND., F.R.S. EDIN.,

SENIOR PHYSICIAN TO THE LIVERPOOL ROYAL INFIRMARY; LECTURER ON CLINICAL MEDICINE, UNIVERSITY OF LIVERPOOL; MEDICAL VISITOR, TUEBROOK ASYLUM; VISITING PHYSICIAN, HAYDOCK LODGE ASYLUM; EXAMINER IN MEDICINE, UNIVERSITY OF GLASGOW.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—In the first place I must thank you, and through you the whole British Medical Association, for the high honour which has been conferred on me in my appointment to deliver this address. This is an honour and a privilege which happens to very few men, and that only once in a lifetime. I feel the dignity of the office and the obligations which it entails all the more deeply inasmuch as the invitation in the first place came from the members of the Association resident in this city. When the invitation was conveyed to me I rather hesitated to undertake a task which I felt I could only inadequately perform, but, on the other hand, I looked upon the request as a command, and it seemed to me that I could scarcely refuse to undertake a duty for which I had been selected by my Canadian brethren.

After accepting the task my difficulties began, and my first was in choosing a subject which would have a more or less general interest. I intuitively turned my attention to the circulation, the ramifications of which pervade the whole field, and as writers hitherto on this subject have almost invariably traced the circulation from the centre to the periphery it occurred to me that we might get a fresh view if we turned our attention in the opposite direction. There are numerous treatises on diseases of the heart and aorta, but until recent years a careful study of the peripheral circulation has been largely left to physiologists and pathologists. The experimental work of Cohnheim will ever remain a landmark in the pathology of the circulation, while to the school of Ludwig physiologists are no less indebted. To physiology medicine owes much and all great advances are being prosecuted along physiological lines. I have previously asserted that diseases of the heart most frequently arise from causes acting on the periphery, and hence there is here no room for specialism. The man who only studies the circulation with the aid of a stethoscope is a positive danger to society. I can, therefore, with an easy conscience and a sense of much satisfaction, devote some attention to that periphery.

The capillaries through which the interchange of nutritive pabulum and gases takes place between the blood and tissues play a most important rôle in the animal economy. Yet they have received very inadequate attention from clinicians. Perhaps it has been thought that their structure and position could be so briefly described that any circumlocution in their description was unnecessary. But however simple their structure, and however apparent their functions, they constitute a vast filter-bed for conveying nutritive material and oxygen to the tissues and for removing waste products therefrom. A careful study of how these changes take place and how the functions of these little tubes are carried on has always seemed to me a matter of as much importance as even the action of the heart itself. These little vessels are of extreme tenuity and delicacy, consisting of a single layer of endothelium, yet they are much stronger than most people imagine, and are capable of standing considerable internal pressure; they vary from about 0·5 to 1 millimetre in length, and from 7 to 13 micro-millimetres in diameter. They are to a certain extent elastic, or at least they have the capacity of adapting themselves to the amount of blood which is driven through them. Their importance has been aptly described by Leonard Hill, who says: "The blood is brought into intimate relation with the tissues by diffusing through the endothelial wall of the capillaries, and this wall is of great tenuity; thereby takes place that change of material which maintains the combustion of the body and the fire of life."

The capillary bed is a vast territory which pervades every tissue and organ of the body and so numerous are these little vessels that it would be difficult to stick the point of a needle in any vascular area without wounding one or more, but in neurotic individuals you may wound many such vessels without drawing blood. In very plethoric individuals and in cases of polycythæmia the capillaries of the body are fairly replete, but in ordinary mortals, especially in those of neurotic temperament, perhaps not a third of the capillaries are full at any one moment. Apply a sinapism to a very pallid skin and you may wonder where all the turgid capillaries have sprung from. From the fact that in normal circumstances a sufficient quantity of blood cannot get through the arterioles to keep the enormous capillary bed full the lateral pressure and the velocity in the capillaries are ever-varying quantities. When Leonard Hill stated that the pressure in the capillaries under certain conditions is often over 100 millimetres of mercury, I thought that there must be some error of observation as I was under the impression that such pressure would rupture these delicate little vessels, but I remembered the old advice: Do not think; try. I tried and found that Leonard Hill had rather understated the fact, as I found variations from about 50 to 2000 millimetres of water. I also found equally great variations in the velocity of the blood in the capillaries. In text-books on physiology it is put down from 0·2 to 0·75 millimetre per second but my observations have given records from about 0·5 millimetre to 25 millimetres per second. The capillary bed covers an enormous area; take, for example, the lungs where all the air vesicles are surrounded by a meshwork of capillaries and the surface of the air vesicles in the average individual has been calculated by Zuntz at 90 square metres. Numerous attempts have been made to estimate the capacity and sectional area of the capillaries but in my opinion these questions are still unsolved.

In a paper on tubal nephritis published in 1883 and in one on the pathology and treatment of dropsy in 1886 I dealt with the capillary circulation. I have long been in the habit of estimating the velocity by compressing the blood out of the capillaries in a given area and then watching the quickness or velocity of the return. This has served, and still serves, my purpose, but when I wish to record my observations I use a glass rod ten millimetres in diameter. With the flat end of this rod I compress the capillaries and then with a stop-watch recording fifths of a second I time the period of the return of the blood. If you divide the radius of this rod (five millimetres) by the time you get the velocity per second. For these observations you must select some spot where there is a network of capillaries which you can completely empty, such as those in the back of the hand or finger and you must also choose a spot where the return current flows from all parts of the circumference. This method is so simple and accurate that it is a matter of surprise to me that, so far as I know, it has never been thought of before.[1] When fluid is circulating in a capillary tube, the axial velocity is double the mean velocity. Now the erythrocytes travel in the axis but as they occupy at least four-fifths of the lumen of the vessel the mean must be fully 0·8 of the observed velocity. For estimating the pressure in the capillaries I use a modification of von Kries's apparatus. For applying the pressure I use three sizes of glass plates, measuring 20, 100, and 400 square millimetres, so a gramme pressure on each of these plates represents respectively 50, 10, and 2·5 millimetres of water. As before stated, I have recorded capillary pressures varying from 50 to 2000 millimetres of water and my velocity records have ranged from 0·5 millimetre to over 25 millimetres per second.

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[1] Dr. George Oliver has drawn my attention to a capillary dynamometer devised by Dr. Alexander Haig for gauging the amount of uric acid in the circulation and estimating the blood pressure. Dr. Haig compresses the blood out of the capillaries under pressures varying from about five to 20 ounces and times the period of compression and of the capillary reflex. Dr. Haig says that his "instrument gives a constant definite area of pressure—a definite and measurable force, the pressure being applied for a definite and constant time, measured by a metronome beating half seconds, the length of time the blood and colour take to return being measured by the same instrument." Our methods are similar but our objects are different. At one time I thought of drawing up rules for estimating the arterial blood pressure by the capillary velocity but I soon found that the necessary corrections on account of the contraction or dilatation of the arterioles, the position and temperature of the part under examination, and perhaps the viscosity of the blood were so numerous as materially to lessen the clinical value of any such method.

[Sir James Barr here considered at some length the lateral pressure and velocity of the blood in the capillaries and the effects of gravity on the capillary pressure. He continued as follows:—]

I have shown that the capillary pressure in the foot, even when immobilised, is often less than that in the hand and much less than that in a grog-blossomed nose. This is entirely due to the wonderful mechanism of the vaso-motor system. Some people are very liable to cold feet in bed and such appendages to a lady seem to have led up to a divorce in the United States of America. In such cases the part may be fairly comfortable before going to bed, but once the horizontal posture is assumed the arterial pressure and capillary velocity fall, so that there is not a sufficient amount of fuel carried to the extremities to keep the large cooling surface warm. Here the defect is in the initial energy, and besides improving the general arterial pressure it would be advantageous to keep the feet much lower than the head and shoulders.

When the arterioles are dilated in any area, as at the commencement of an inflammation, the whole of the capillaries are opened up and engorged with blood, and with this increased mass the pressure is raised, but the velocity is also heightened owing to the arterial potential remaining high and the resistance in the enlarged capillaries being diminished. The resistance is inversely as the square of the cross sections, or the fourth power of the diameter, or directly as the square of the velocity. We have seen how hydrostatics affect the pressure in the capillaries, but the velocity is much more uniformly affected. It is usually sufficient to lower the hand 320 millimetres in order to double the velocity, and in the capillaries of the foot the velocity is usually extremely rapid. Velocity, $V = \sqrt{2gh}$; but in the capillaries we have further to take into account the sectional area, which has not yet been accurately computed either in whole or part.

So readily is the capillary velocity affected by the arterial pressure that, *ceteris paribus*, you can easily detect a difference between the velocity in the back of the hand and in the fingers: when a warm hand is hanging down the velocity in the finger is greater than in the back of the hand and if the relative position of these parts be altered the velocities are reversed. I purposely said a warm hand, because in a cold hand the capillary circulation in the fingers is often very languid. After removal of an Esmarch's tourniquet the capillary velocity in the flushed extremity is considerably augmented.

Any obstruction to the outflow from the capillaries diminishes the velocity in them. The hydrostatic effect of the blood in the veins would materially obstruct the capillary flow only for the provision of valves, and the muscular compression hastens on the blood and thus diminishes the statical condition. However, certain capillaries, such as those of the liver and kidneys, are exposed to considerable backward pressure when from any cause the venous pressure is raised. When the velocity in the capillaries is reduced to one millimetre or less per second the blood becomes surcharged with carbonic acid and the skin or organ supplied becomes of a dusky hue. This appearance immediately disappears if you increase the capillary velocity; for example, when the hand is blue and passively congested from cold, or the so-called local asphyxia, if you let it hang down you increase the velocity and you quickly see bright red spots intermingled with surrounding lividity, and soon the colour of the whole hand improves. In the cold livid dependent hand the colour of the fingers is better than that of the back of the hand. When you get cardiac failure, with or without any obstructive lung disease, you frequently see the upper part of the body and the hands quite dusky, while the legs and feet, which are at a lower level, may be pale. In one marked case of cardiac failure where the upper part of the body was livid I saw one foot and part of the leg in a state of local syncope and as pale as marble. These patients do not require a cylinder of oxygen with which they are frequently plied but the judicious application of a little common sense, such as the intravenous injection of small doses of adrenalin or some cardiac tonic. In cases of Raynaud's disease the local syncope is ascribed to vaso-motor spasm, but really the spasm, if it exists, is a very mild affair. In these cases the arterioles shut down because there is not sufficient blood pressure to keep them open. The arterial pressure is always low and the blood is deficient in lime salts and viscosity. In the cases of local asphyxia the arterioles are not closed, but the arterial potential is low, the velocity in the capillaries is defective, and the *vis viva* is not sufficient to drive on the blood stagnating in the veins. In cases of erythromelalgia the reverse happens; the velocity and pressure are both increased in the large engorged capillaries.

In many cases of pneumonia with low blood pressure the vaso-motor taps in the splanchnic area are all open and the aorta is drained before it terminates in the iliac arteries; the bulk of the blood is retained in the chest and abdomen and the quantity supplied to the lower limbs is diminished. Moreover, the extremities are often colder than the body and the arteries contracted. The lower level of the limbs increases the velocity in the capillaries and veins and consequently the capillaries of the foot and leg are often blanched and the veins comparatively empty when the upper part of the body appears congested and purple.

VISCOSITY OF THE BLOOD.

The viscosity varies greatly and is no doubt the great cause of resistance in the capillaries. Normally it is about five times that of distilled water, and my friend Dr. John H. Watson, who has recently been doing some valuable work on this subject in association with a physicist, Dr. A. Du Pré Denning, has found that in many diseases the viscosity is nine or ten times that of distilled water. The coefficient of viscosity in the tarry blood of Asiatic cholera is often so great that it will not pass through the capillaries. Dr. J. J. Graham Brown and others have found that a rise in temperature lessens the viscosity and hence a febrile temperature lessens the resistance and so diminishes the work of the heart, but it does not follow from this that a high temperature in fever is an advantage, as there are many more efficient ways of lessening the viscosity. Dr. Watson and Dr. Denning have devised a very convenient capillary viscosimeter which shows these variations in this physical property of the blood. They conclude that the chief resistance to the flow is due to the viscosity and occurs in the capillaries. It has long been a disputed point as to whether the resistance to the arterial flow, and consequently to the heart, is situated in the capillaries or arterioles.

Sir William H. Broadbent, I believe, even now throws the weight of his deservedly great name in favour of the resistance being in the capillaries; and in cases of vaso-motor paralysis no doubt such is the case, but in ordinary circumstances I agree with the majority that there is an earlier barrier to the outflow from the heart in the arterioles and small arteries which are governed by vaso-motor nerves. This can be readily proved by the fact that there is very little fall in the pressure-gradient from the large to the small arteries. The pressure in the radial and tibial at the same levels is as great as that in the brachial and femoral. When you come to the very small arteries and arterioles which are offering resistance to the flow there are a very great fall in the pressure and an increased velocity. The fall between the radial and digital artery may be as much as 50 millimetres of mercury, and there may be an even greater fall in the pressure-gradient between this and the capillaries. Now, if the capillaries formed the first line of resistance the fall in the pressure-gradient would be much more gradual and high arterial pressure would be associated with high capillary pressure, but we know the reverse to be the case.

It is extremely fortunate that there is this first line of defence created by the action of the vaso motor nerves in the small arteries and arterioles, because if this were wanting as at present constituted we should either have to go about on all fours or constantly run the risk of fatal syncope.

[Sir James Barr here quoted the opinions of several physiologists on various questions connected the viscosity of the blood. He continued as follows:—]

THE INTERCHANGE OF MATERIAL THROUGH THE CAPILLARY WALLS.

There are some physiologists who would raise the endothelial cells of the capillary walls to the high level of secreting structures; not that they have any evidence, either from analogy or otherwise, in support of such a contention, but simply because they think that the physical properties of diffusion, osmosis, and filtration cannot account for the phenomena. They hold that the capillary pressure is low and is more than counterbalanced by the endosmotic equivalent of the albumin and salts in the blood. When they recognise the enormous variation which takes place in the pressure and velocity of the blood in the capillaries they will have less difficulty in admitting the problem of filtration as applicable to the capillary circulation. The fall in the pressure-gradient in the capillaries must be fairly uniform from arteriole to venule, but as there is usually a considerable fall from the capillaries to the veins there must be a corresponding difference between the efferent and afferent capillaries and thus transudation and absorption in different parts of the same network can be readily explained. In the intestinal capillaries the larger and deeper vessels supply the secretory structures and the smaller and more superficial vessels are the absorbents.

The interchange of gases which are in solution readily takes place by the process of diffusion; and osmosis must play a very important part in transudation and absorption according as the osmotic equivalent is greater on one side or the other of the capillary membrane. In 1886, when dealing with the pathology of dropsy, I said: "Fluids pass very readily through organic membranes, such as the walls of the capillaries, by a process of osmosis, but albumins do not thus readily transude. Unlike the capillaries of the lungs and kidneys the systemic capillaries allow albumin to pass through their walls, so that it is found in all the intercellular fluids. Now, if it does not pass through by osmosis, we must suppose it to be filtered through under varying amounts of pressure. In filtering under pressure, as a rule, the greater the pressure the greater the amount of the filtrate, but the composition of the latter differs very materially from the nature of the compound fluid submitted to the pressure, as the different constituents pass through with varying degrees of ease, the water passing through much more readily than the albumin. Hence, although the total amount of albumin passed through may be increased according to the quantity of the filtrate, its percentage is diminished. Hence the greater and more rapid the production of dropsy—if there be no increase in absorption—the less the relative amount of albumin." Runeberg in 1882 expressed similar views when he maintained that the concentration of a colloid filtrate is greater at lower than at higher pressures.

THE ARTERIOLES AND CAPILLARIES OF THE SKIN.

The arterioles are well endowed with muscular fibre and vaso-motor nerves, chiefly of the constrictor type; frequently they are so contracted that the capillaries are almost empty, and in cases of local syncope quite empty, and the pressure and velocity fall to zero. When the vaso-motor nerves are paralysed from a central cause the capillaries are full, their pressure increased, and the velocity diminished. When paralysed from a local cause—such as a mustard poultice—the capillaries are engorged and the pressure and velocity increased. Witness also the effects following the application and removal of an Esmarch's tourniquet. These little vessels are reciprocal to those of the splanchnic area, and are largely concerned in regulating the temperature of the body and in maintaining the general arterial pressure.

The capillaries form an exceedingly close network in the corium and send loops up into the papillæ. The pressure and velocity vary enormously. After a liberal meal—especially one containing ingredients which dilate the arterioles, raise the diastolic arterial pressure, and thus provide an abundant supply of blood to, with increased pressure in, the capillaries—there is a free outpouring of lymph. In my opinion, a good deal of the work which has been done on the so-called digestion leucocytosis has been rendered worthless by the work of George Oliver on the tissue lymph circulation. These observations were made on blood obtained from a prick of the finger and this consists of a mixture of blood and lymph. The white cells are increased—the increase being in the lymphocytes—in proportion to the dilution with lymph and the red cells are proportionately diminished. If the lymph be compressed out of the tissues and then a drop of pure capillary blood be obtained there will be found in it an increase of red cells, and the white cells will be much less than in the mixed blood and scarcely any more than would be obtained by an ordinary puncture two or three hours later when the lymph had been reabsorbed. This so called digestion leucocytosis is therefore no evidence of any increase of white corpuscles in the circulating blood but merely that lymph has been pressed out from the vessels, and in this lymph there is a considerable number of leucocytes, probably obtained from the tissues rather than from the capillaries. There is, no doubt, a digestion leucocytosis but it is not what has been described.

[Sir James Barr here gave various details of the structure and physiology of the arterioles and capillaries of the splanchnic area and the kidneys, of the capillaries of the liver, and of the cerebral and coronary vessels. He continued as follows:]

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The pressure in the pulmonary artery is not more than one-third and the velocity of the blood about three-fourths of those respective conditions in the aorta; but, unlike the vena cava, the pressure in the pulmonic veins is always positive, so that the blood always enters the left side of the heart under pressure, while it is usually sucked into the right side. There is a gradual fall of the pressure-gradient from the right ventricle to the left auricle and there does not seem to be much resistance to the circulation either in the arterioles or capillaries. Bradford and Dean and François Franck have shown by a series of very elaborate experiments that the pulmonic vessels are innervated; but while such innervation may be sufficient to maintain slight tone in the vessels some experiments with adrenalin would show that it cannot constrict the vessels so as to effectively increase the resistance.

Respiration renders great assistance in carrying on the circulation to the right side of the heart and to a less extent to the left. That the assistance extends to the whole circulation is shown by the fall in the arterial pressure which occurs at the beginning of inspiration. In the so-called pulsus paradoxus (there is no paradox but merely an exaggeration of a perfectly normal phenomenon) and in Müller's experiment of expanding the chest with the glottis shut the pulse may disappear at the wrist. This is due to the sudden emptying of the veins to fill up the vacuum in the chest and with this removal of the obstruction to the capillary flow there is a simultaneous depletion of the arteries. It is not due, as has been supposed by Kussmaul, to any kinking of the large vessels, or to any sucking back of the blood into the aorta, as has been imagined by those who seem to have forgotten that the pressure in the aorta is always high and cannot be affected by a negative pressure in the thorax. It is due to a certain fall in pressure affecting the veins, capillaries, and arteries, and it is most marked in cases of low arterial pressure. When the arterioles are much contracted and the arterial tension high, as in cases of Bright's disease, it does not occur. The lungs form a blood reservoir for the left side of the heart and during this expansion the reservoir is increased and has to be filled up before the left side of the heart is sufficiently well supplied with blood to enable it to throw the proper quantities into the aorta at each systole; the arteries are therefore emptied at their distal end and not filled at their proximal end and so the pulse disappears until an equilibrium is restored.

I recently had a very good example of this in a case of bradycardia under my care where the frequency of the pulse varied from 12 to 24 beats in the minute. When Dr. John Hay and my house physician, Dr. Jones, were taking cardiographic and sphygmographic tracings I found that when the patient took a long deep breath and then held his chest expanded as long as possible the following events occurred During the deep inspiration there were two beats of the heart and two pulses at the wrist, then the pulse disappeared in the carotid, brachial, radial, and femoral arteries, and remained absent for several beats. At the same time the impulse of the heart disappeared and the clear loud first sound and systolic murmur were replaced by a low, dull-toned, obscure sound, and the second sound was not audible. After four or five faint systoles, which I attributed to the right ventricle, the clear first sound and systolic murmur and the double second sound reappeared and were associated with a return of the pulse in all the arteries. Here undoubtedly the blood was stored up in the lung reservoir and the proper systoles of the left ventricle and the pulse in the arteries did not reappear until the reservoir overflowed. He had several attacks of semi-consciousness and one slight epileptic seizure during the periods of suspended breathing with the chest expanded. These attacks always occurred after the pulse had ceased for about 20 seconds

In 19 4 Dr George Oliver gave a great stimulus to the study of the peripheral circulation by the publication of his admirable work on the tissue-lymph circulation. He showed ranged from 0·5 millimetre to over 25 millimetres per second.

[Sir James Barr here considered at some length the lateral pressure and velocity of the blood in the capillaries and the effects of gravity on the capillary pressure. He continued as follows:—]

I have shown that the capillary pressure in the foot, even when immobilised, is often less than that in the hand and much less than that in a grog-blossomed nose. This is entirely due to the wonderful mechanism of the vaso-motor system. Some people are very liable to cold feet in bed and such appendages to a lady seem to have led up to a divorce in the United States of America. In such cases the part may be fairly comfortable before going to bed, but once the horizontal posture is assumed the arterial pressure and capillary velocity fall, so that there is not a sufficient amount of fuel carried to the extremities to keep the large cooling surface warm. Here the defect is in the initial energy, and besides improving the general arterial pressure it would be advantageous to keep the feet much lower than the head and shoulders.

When the arterioles are dilated in any area, as at the commencement of an inflammation, the whole of the capillaries are opened up and engorged with blood, and with this increased mass the pressure is raised, but the velocity is also heightened owing to the arterial potential remaining high and the resistance in the enlarged capillaries being diminished. The resistance is inversely as the square of the cross sections, or the fourth power of the diameter, or directly as the square of the velocity. We have seen how hydrostatics affect the pressure in the capillaries, but the velocity is much more uniformly affected. It is usually sufficient to lower the hand 320 millimetres in order to double the velocity, and in the capillaries of the foot the velocity is usually extremely rapid. Velocity, $V = \sqrt{2gh}$; but in the capillaries we have further to take into account the sectional area, which has not yet been accurately computed either in whole or part.

So readily is the capillary velocity affected by the arterial pressure that, *ceteris paribus*, you can easily detect a difference between the velocity in the back of the hand and in the fingers: when a warm hand is hanging down the velocity in the finger is greater than in the back of the hand and if the relative position of these parts be altered the velocities are reversed. I purposely said a warm hand, because in a cold hand the capillary circulation in the fingers is often very languid. After removal of an Esmarch's tourniquet the capillary velocity in the flushed extremity is considerably augmented.

Any obstruction to the outflow from the capillaries diminishes the velocity in them. The hydrostatic effect of the blood in the veins would materially obstruct the capillary flow only for the provision of valves, and the muscular compression hastens on the blood and thus diminishes the statical condition. However, certain capillaries, such as those of the liver and kidneys, are exposed to considerable backward pressure when from any cause the venous pressure is raised. When the velocity in the capillaries is reduced to one millimetre or less per second the blood becomes surcharged with carbonic acid and the skin or organ supplied becomes of a dusky hue. This appearance immediately disappears if you increase the capillary velocity; for example, when the hand is blue and passively congested from cold, or the so-called local asphyxia, if you let it hang down you increase the velocity and you quickly see bright red spots intermingled with surrounding lividity, and soon the colour of the whole hand improves. In the cold livid dependent hand the colour of the fingers is better than that of the back of the hand. When you get cardiac failure, with or without any obstructive lung disease, you frequently see the upper part of the body and the hands quite dusky, while the legs and feet, which are at a lower level, may be pale. In one marked case of cardiac failure where the upper part of the body was livid I saw one foot and part of the leg in a state of local syncope and as pale as marble. These patients do not require a cylinder of oxygen with which they are frequently plied but the judicious application of a little common sense, such as the intravenous injection of small doses of adrenalin or some cardiac tonic. In cases of Raynaud's disease the local syncope is ascribed to vaso-motor spasm, but really the spasm, if it exists, is a very mild affair. In these cases the arterioles shut down because there is not sufficient blood pressure to keep them open. The arterial pressure is always low and the blood is deficient in lime salts and viscosity. In the cases of local asphyxia the arterioles are not closed, but the arterial potential is low, the velocity in the capillaries is defective, and the *vis viva* is not sufficient to drive on the blood stagnating in the veins. In cases of erythromelalgia the reverse happens; the velocity and pressure are both increased in the large engorged capillaries.

In many cases of pneumonia with low blood pressure the vaso-motor taps in the splanchnic area are all open and the aorta is drained before it terminates in the iliac arteries; the bulk of the blood is retained in the chest and abdomen and the quantity supplied to the lower limbs is diminished. Moreover, the extremities are often colder than the body and the arteries contracted. The lower level of the limbs increases the velocity in the capillaries and veins and consequently the capillaries of the foot and leg are often blanched and the veins comparatively empty when the upper part of the body appears congested and purple.

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In 19 5 Dr George Oliver gave a great stimulus to the study of the peripheral circulation by the publication of his admirable work on the tissue-lymph circulation. He showed that during the first hour of digestion there was a rise in the blood pressure—arterial, capillary, and venous—with a flow of lymph into the tissues; during this wave there might be a difference of from 10 to 20 per cent. in the number of erythrocytes and in the hæmoglobin between the mixture of blood and lymph obtained by a simple prick of the finger and that of the pure capillary blood obtained from the same prick after the lymph had been compressed out of the finger. He also showed that the same extracapillary lymph flow occurred in the muscles and prevented any further rise in the arterial pressure from tension exercises. His observations led him to the following conclusions: "1. That the food constituents themselves (proteids, fats, and carbohydrates) do not possess the power of starting the mechanism by which lymph is dispensed to the tissues through the body. 2. That Nature, however, associates with our foodstuffs small quantities of very active substances which, bring into play that mechanism, though these substances themselves are practically devoid of food value, and that man frequently increases this natural lymph by the use of salt and beverages containing bodies which also incite the flow of lymph. Such bodies as uric acid, creatin, creatinin, xanthin, glycogen, and sodium chloride perform an important function in nutrition, for during digestion they act as distributors of lymph to all the tissues—an office which the nutrient constituents themselves (proteids, fats, and carbohydrates) are incapable of discharging." Dr. Oliver associated the action of these lymphagogues with a rise in capillary blood pressure, but in 1891 Heidenhain had ascribed the action of such agents to a specific excitation of the secretory activities of the endothelial cells. We have before referred to the careful experimental work of Starling in 1893, by which he refuted the conclusion of Heidenhain and re-established the doctrine of filtration under pressure.

When a person is standing the venous pressure in the foot is raised, but so also is the arterial. Supposing in the circumstances you have a venous pressure in the foot of 100 millimetres of mercury obstructing the capillary flow and an arterial pressure of 300 millimetres of mercury, you have a difference of 200 millimetres of mercury driving the blood through the capillaries with great velocity and very little lateral pressure. If, then, the subject assume the horizontal posture, and raise the foot till the venous pressure be *nil*, there will be a corresponding fall in the arteries of 100 millimetres of mercury, but there will still remain the same difference between the arteries and veins of 200 millimetres. The following physical experiment readily explains this question of pressure and velocity. If you construct a U-shaped tube out of india-rubber tubing, having both the limbs very wide, and a short connexion made of very fine tubing, then make a small hole in each of the three pieces and connect one of the limbs with a water-tap, you will then find that the water comes out in a forcible jet from the hole in the proximal limb or artery, with less force from the hole in the distal limb or vein, but from the hole in the capillary there is no escape; the energy in it is all converted into velocity. If you compress the vein, then you raise the lateral pressure in the capillary and thus cause an escape. In the healthy individual the arteries of the lower limbs are firmly contracted, and although the pressure is high the mass of blood on which it acts is relatively small and consequently the energy in the capillaries is largely converted into velocity. In proportion as you obstruct the outflow from the capillaries you increase the lateral pressure and diminish the velocity in them and consequently increase the transudation. In cases of vaso-motor paresis and in cases of cardiac failure the mass of blood in the capillaries of the dependent limb is augmented, the pressure is increased, and the velocity is diminished; consequently you get œdema.

The Veins.

The veins are smooth, capacious vessels, which practically offer no resistance to the circulating blood. They contain a certain amount of muscular fibre, and are supplied with some vaso-motor nerves, which maintain their tone and to some extent regulate their capacity. The great strength of the veins depends on the strong fibrous external coat. They are slightly elastic and attain their *maximum* distension at a low internal pressure; in this respect they differ essentially from their corresponding arteries. The veins have very flaccid walls and consequently readily adjust their cubic space to the amount of blood in transit. It has been shown by MacWilliam and by Leonard Hill that veins contract on mechanical stimulation or by cold and dilate by heat. The coefficient of elasticity increases with the internal pressure. The lateral pressure in the systemic veins depends on three factors—namely: (1) the obstruction to the inflow to the chest; (2) the hydrostatic effect of the column of blood; and (3) the potential energy transmitted through the capillaries. In the portal vein the pressure is always positive and in this respect it resembles an artery.

Velocity in the Veins.

The blood in the veins is one of the very few things which run more quickly up the hill than they do down it. The velocity depends on the *vis a tergo* and varies enormously; in the veins of the arm it is frequently five times greater when the arm is hanging than when it is held horizontally at the level of the shoulder. The velocity is calculated by emptying a long piece of vein between two valves and then timing with a stop-watch the period it takes the blood to fill the empty vein. I have seen 23 centimetres of a vein in a dependent arm filled in 0·2 of a second, or a velocity of 115 centimetres in the second, a velocity as great as often occurs in the aorta. As in this case viscosity and friction can be left out of account, the only resistance to the flow was the retarding influence of gravity which can be easily calculated. The resistance would just equal the accelerating influence of gravity on a body falling *in vacuo* through a height of 23 centimetres, and from the formula $V = \sqrt{2gh}$, we know that this would equal a terminal velocity of 2100 millimetres per second. This is equivalent to a pressure of 230 millimetres of blood and equals the resistance, but in order to attain a velocity of 1150 millimetres in the second over and above the resistance of gravity, we must have a pressure which would give a velocity of 3250 millimetres in the second, which would be obtained by the pressure of a column of blood of 530 millimetres in height. The pressure-gradient in these 23 centimetres of vein would, therefore, be a fall from 530 to 300 millimetres of blood, or from 40 to 23 millimetres of mercury. This calculation was borne out by observation with a hæmometer. In these calculation, mercury is reckoned as 13 times heavier than blood. Where the resistance is *nil* a pressure gradient of five millimetres of mercury in a vein will give you a velocity of 1120 millimetres in the second. These observations show how kinetic and potential energy in every part of the circulation is constantly varying.

The Arteries.

As the blood leaves the heart its energy is largely kinetic and therefore there must be very little lateral pressure at the commencement of the aorta during ventricular systole, but if the aorta be healthy a large portion of this energy is rapidly stored up in the elastic walls as potential which is paid out during the diastolic period and then the blood is compressed with a force nearly equal to that which it exercised, and this applies to all portions, including the commencement. The velocities of the blood in the aorta and pulmonary artery vary considerably in different individuals and in the same individual under different conditions. The velocity is directly as the cardiac energy and inversely as the resistance to the outflow and the sectional area. The force of the right ventricle is not a third of that of the left but the resistance is also not a third of that in the systemic vessels; the sectional area is only slightly greater, therefore the velocity in the pulmonary artery is nearly equal to that in the aorta.

In my opinion physiologists place too low an estimate on the velocity of the blood in the aorta, though no doubt their conclusions are based on many careful experiments, but experiments very difficult to carry out and very liable to great fallacies. Chauveau found that the velocity in the carotid artery of the horse reached 520 millimetres per second during systole, while at the time of the dicrotic wave the velocity sank to 220 millimetres per second and in diastole to 150 millimetres per second. In the human aorta the mean velocity has been set down as 320 millimetres to the second, while Professor Sherrington is a little more liberal with 500 millimetres. Now, a fall in the pressure-gradient in the aorta from 100 to 80 millimetres of mercury gives you a theoretical velocity of 525 millimetres per second. A clear comprehension of these questions of velocity and pressure in the aorta is essential for any true knowledge as to how stress and strain produce atheromatous and sclerotic changes in the vessels. There is no more important subject in the whole domain of medicine, as, after the age of 50, arterio-sclerosis, directly or indirectly, kills more people than any other disease.

We have seen that a pressure-gradient of five millimetres of mercury in a vein without any resistance would give a velocity of 1120 millimetres in the second, but in an artery, in order to get a velocity of 1120 millimetres you require a fall in the pressure-gradient from 150 to 100 millimetres of mercury. With a pressure of 150 millimetres and a resistance of 120 millimetres of mercury to the outflow you get a velocity of 640 millimetres in the second. With this velocity there is no excessive longitudinal strain on the vessel and provided the lateral pressure in the aorta does not exceed 150 millimetres of mercury the elasticity of the vessel may be preserved till old age. This ideal is not often realised.

When you get a continuous lateral pressure of 200 millimetres of mercury or more there is no period of repose for the vessels but merely periods of greater or less distension; there is interference with the circulation in the nutritive vessels, the vasa vasorum; you get irritative and proliferative changes in the subendothelial layer of the intima, atheromatous and perhaps calcareous degeneration follow, and the elasticity of the aorta becomes impaired. Oskar Klotz says that all the aortas examined by him coming from persons over 25 years of age showed more or less calcareous change in the aortic wall. In proportion to the loss of the elasticity the energy of the heart is not stored up and with the loss in the conservation of energy the heart has got more work to do in order to carry on the circulation and a great disparity arises between the systolic and diastolic pressures. In these cases the immediate resistance to the outflow from the heart is not increased but the total work is greater, the diastolic pressure in the heart rises, and the ventricle dilates and hypertrophies. The output is increased, the velocity is increased, and longitudinal straining—especially along the greater curvature of the arch of the aorta—takes place. When failure begins to set in you may find the force of this big powerful organ which shakes the whole chest only poorly represented at the periphery. In these cases the storage is defective, the pressure and the velocity are more or less intermittent, and there is an enormous waste of energy. In cases of very free aortic regurgitation the difference in the pressure-gradient and consequently in the velocity is often very great, the cardiac hypertrophy becomes extreme, and subsequent failure rapidly takes place.

This question of storage forms an important element in prognosis and for this reason aortic regurgitation occurring early in life from a rheumatic lesion when the aorta is fairly healthy is, *ceteris paribus*, very much less serious than a similar lesion arising secondary to degeneration of the aorta. If there be any elasticity left in the aorta and principal branches there is an advantage in aortic regurgitation in maintaining a relatively high diastolic pressure, because you thus make circulation more uniform and you do not necessarily raise the systolic pressure or increase the work of the heart. For these reasons well-regulated doses of digitalis and squills often do an enormous amount of good in this disease, notwithstanding the fact that many well-recognised authorities have entirely condemned the use of digitalis in aortic regurgitation, possibly because they did not know how to use it.

While a combination of these drugs increases the peripheral resistance—which is an advantage if moderate in amount—they lessen the size of the ventricle, increase the length and completeness of contraction, diminish the residual blood, and thus lower the diastolic pressure in the ventricles. In the present day it is a very common, and occasionally beneficial, practice to combine cardiac tonics with vaso-motor relaxants, such as digitalis and nitro-glycerine, but before combining opposing forces I think it is always well to have a clear indication in your mind as to the objects which you wish to accomplish, and the results which are likely to be attained. The circulation of the blood is one of the most perfect pieces of mechanism in the universe, and no amateur should be trusted to keep it in repair, yet American and English people pour tons of baneful drugs down their throats every year on the recommendation of advertising quacks, who care nothing for the lives and health of the community, and care for nothing but their money.

Arterial Blood Pressure.

During recent years an enormous amount of literature has been devoted to what has been euphemistically described as blood pressure. With one of the numerous blood-pressure instruments which are on the market it might seem a very simple matter to make an observation, but it must be remembered that it is not the instrument, but the man behind the instrument, who makes or mars the observation. The arterial pressure at the level of the heart depends on the force of the cardiac systole and the resistance to the outflow through the arterioles and capillaries. With a healthy heart or self-regulating pump the greater the resistance the greater the force of the cardiac contraction and consequently the higher the lateral pressure on the walls of the arteries. If the resistance be too great we may get cardiac failure and then the pressure falls. A long-continued great resistance increases the work of the heart, and work leads to hypertrophy which maintains the pressure at a high level. In a healthy aorta the coefficient of elasticity increases with the internal pressure, but long-continued strain impairs the elasticity and leads to degenerative changes in the intima. Roy considered that the maximum distensibility of an artery occurred under pressures corresponding more or less exactly to their normal blood pressure, but since then MacWilliam has shown that this is an error due, no doubt, to Roy unwittingly using arteries in a state of post-mortem contraction. MacWilliam has shown that the behaviour of an artery under varying degrees of internal pressure depends on the state of contraction or relaxation of the vessel and on the relative amount of elastic and muscular tissue.

When a person is in the horizontal posture there is still the same pressure-gradient between the systolic and diastolic pressures and in all the arteries of the limbs these respective pressures are about similar levels. The postural variations in pressure have been thoroughly investigated by Leonard Hill and placed on a true scientific basis. These variations are of importance not only from a physiological but also from a pathological standpoint. In arterio-sclerotic changes the arteries of the lower limbs are most involved, notwithstanding their muscular development and good vaso-motor nerve-supply. These arteries take part in raising the general arterial pressure and are also subjected to additional internal strain from the statical pressure of the blood; hence both the middle and internal coats are involved in the sclerotic changes.

In arterio-sclerosis the middle coat is chiefly thickened in the muscular arteries and arterioles which take part in raising the general arterial pressure, such as those of the splanchnic area, the skin, and muscles; while in those arteries which are not very muscular and are subjected to internal strain from both high systolic and diastolic pressures the intima is principally involved. Hence atheroma and calcareous degeneration are very common in the aorta and in the commencement of its branches, and in the coronary and cerebral arteries. The carotid arteries seem to occupy an intermediate position; they are muscular and very contractile, and are not specially liable to sclerotic changes either in the intima or the media.

In my writings on arterio sclerosis I entered very fully into the numerous causes which give rise to this disease, and the pathological aspect of the subject has been well investigated by Councilman, Cowan, Russell, Welch, and a host of others. A life of indolence and luxury is more deleterious to the circulation than the work of a navvy. I must not be supposed as recommending either course of life, but a happy mean with a strong leaning towards hard work.

The Heart.

No survey of the circulation would be complete without a reference to the self-regulating pump. The heart is composed of two physiologically distinct organs—the right and left heart. Each has got its own varying amount of work to perform and it in normal circumstances, performs it without any assistance from the other, but in cases of stress or difficulty they mutually assist one another. They act together, and are set to the same time, but this does not prevent one side from beginning or ending contraction before the other, and so much so is this the case—and they are at least to this extent independent—that doubling of both sounds of the heart is one of the most common of cardiac phenomena. In a healthy heart both sounds are usually doubled every deep respiration.

Ladies and gentlemen, I have said enough to show you the necessity of a well-balanced circulation for the maintenance of life and health. It is only with healthy blood-vessels that anyone can hope to retain his mental and bodily vigour and expect to attain a green old age. Like the circulation, let us run with patience the race which is set before us. "Life every man holds dear, but the brave man holds honour more precious dear than life."

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[Sir Victor Horsley commenced his address by defining the limits within which he intended to speak. 20 years ago, he said, he had shown at a meeting of the Association the first three patients upon whom he had operated at the National Hospital for the Paralysed and Epileptic for intracranial disease. During the interval further experimental research on animals and clinical observations upon human beings had confirmed the soundness of the treatment that he then laid down; and in his address he proposed to analyse his cases at the National Hospital and to show that an accumulation of facts now afforded a ready answer to many important questions of diagnosis and prognosis. He continued:—]

THE RESPONSIBILITY OF THE SURGEON.

I must first briefly allude to the responsibility of the surgeon in the treatment of diseases of the central nervous system. As in all special branches of medicine and surgery which are in a process of evolution it is not easy to assign credit or blame when the course of treatment pursued is respectively successful or unsuccessful; but so long as our powers of diagnosis remain as imperfect as they are so long will the vulgar error of regarding surgical treatment as a *dernier ressort* be committed. This question—namely, When should medicinal treatment be given up and operative treatment substituted?—has been raised again and again and hotly discussed in connexion with many diseases, notably appendicitis. In 1890, hoping to secure a more logical and definite pronouncement on this fundamental point at the International Medical Congress, I proposed that in cases of Jacksonian epilepsy and other syndromata which suggested the existence of gross organic disease of the brain a definite probationary period of medicinal treatment should be agreed upon and that in an elementary case where no urgent symptoms like optic neuritis existed surgical treatment should be employed after thorough drug medication had been energetically applied for about six or eight weeks and cure had not appreciably resulted. No conclusion, however, was arrived at. Again, in 1893 I was unable to get an expression of opinion on this point, although Dr. Allan Starr in his well-known work on "Brain Surgery," has also formulated the conclusion that the surgeon should be invited to consultation in the case after about three months' medical treatment had been unsuccessful. Although such a course is in general the practice at the Queen Square Hospital, this view of the situation unfortunately has not yet been discussed in the profession. Even in the present year I have been asked to operate on a patient with a lateral tumour of the cerebellum who had been known to have optic neuritis for nine years, and last year I did operate on such a patient who had been known to have optic neuritis for 13 years. It is, of course, perfectly ridiculous to include such cases in surgical statistics purporting to be a scientific study of this subject, and I only mention them to show what extraordinary ideas still prevail of our responsibility towards the victims of diseased conditions when such happen to constitute what are termed new subjects in medicine and surgery.

Assuming now that in a given case surgical treatment is considered advisable, the question immediately arises for what precise purpose is it to be employed, for all treatment, medical or surgical, is either palliative or curative. These two aspects of the matter require separate consideration.

PALLIATIVE SURGICAL PROCEDURES.

It is a prominent characteristic of intracranial disease that (1) it is liable to produce optic neuritis, which customarily ends in total blindness; and (2) it may concomitantly cause severe headache and vomiting, all of which symptoms are dependent upon pressure and can be completely palliated or wholly removed by making a sufficiently free opening in the skull and dura mater.

Optic neuritis is a condition which, owing to its causing blindness, is of such vital importance to the interest of the patient, and so to the community, that it merits full attention. In 1886 its pathological causation was a matter of acute controversy, but we learnt by a very few years of operative surgical experience that, whatever other factors might be concomitant, the most important one in the production of optic neuritis was increase of the intracranial tension, and thus it happened that our earliest experience was the strikingly rapid subsidence of the optic neuritis when the skull and dura mater were opened. Therefore it is now possible to dogmatise on this question and to say that in no case of optic neuritis (not, of course, of toxæmic or anæmic origin) should the process be allowed to continue after it has once been diagnosed, and that if blindness results therefrom the responsibility is very heavy on anyone who fails to advise such a simple proceeding as opening the dura mater. As regards the procedure to be adopted, my own experience is that although in rare instances the neuritis may begin to subside after even the first stage of only opening the skull it is, as a rule, necessary to make a free opening in the dura mater to effect this purpose. One reservation must be made, that in cases where the tumour directly involves the optic tract the specially delicate anatomical structure of the optic tract may negative the attaining of this otherwise invariable result.

In predicting what will be the condition of vision after surgical treatment of the optic neuritis everything depends upon the care with which the ophthalmoscopic appearances of the disc are interpreted. Yellowish-white stippling, patches of exudation, or opal white atrophic changes, especially when associated with macular figures, all indicate that the secondary changes in the disc are likely to be permanent, and therefore in proportion to their development so the vision will be impaired, whereas when the loss of vision has been dependent simply on the swelling of the disc then not only is the sight saved but largely improved. For some further discussion of this most important point from the point of view of the ophthalmologist I would refer to Mr. Leslie Paton's recent analysis of the Queen square cases which contains many of the results of my operations.

One more point must be mentioned in connexion with optic neuritis because although of more importance in diagnosis than technical procedure I find it is of the utmost value in indicating to the surgeon on which side he should operate. I refer to the localising value of the incidence of the optic neuritis. Varying statements have been made on this subject from time to time—namely, (*a*) that the optic neuritis begins on the side of the lesion; (*b*) that it begins on the opposite side of the lesion; (*c*) that sometimes one thing happens and sometimes the other according to the position of the lesion in the skull—for example, whether above or below the tentorium and according to the nature of the lesion. I wish to lay down the proposition drawn from an examination of my own cases of intracranial tumour that the optic neuritis commences on the side of the lesion. I am quite aware that true exceptions may yet be found to this rule, but I would point out that some of the exceptions hitherto described have not been real; that in any given case it is not a question merely of the number of dioptres of swelling of the disc, but it is also a matter of the anatomical changes in the disc; and, finally, that by the time the patient comes under observation the disc on the side of the lesion may be actually subsiding into decadent conditions at a time when the opposite disc is rising into its maximal swelling.

To sum up, then, during the past 20 years we have learnt that although the old procedure of de Wecker of incising the swollen sheath of the optic nerve in the orbit is of no avail we can with certainty avert blindness by opening the subdural space early in cases of intracranial disease. The opening is to be made preferably in the basal temporal region of the right side—that is, assuming that no attempt is made to attack the disease itself.

CURATIVE SURGICAL PROCEDURES.

If the operation is undertaken for the purpose of effecting a cure we have to consider (1) what is the nature of the disease; (2) what loss or aberration of nerve function it causes; (3) whether if the lesion be wholly extirpated there will be a recovery from the disorder of function; and (4) whether any loss which may have been present before operation will be made permanent by the necessary extirpation of particular regions of the brain. On points like the last it is evident that we cannot give a satisfactory opinion until we know precisely, first, what parts of the central nervous system alone contain the representation of movements or the record of sensation, and consequently of what parts does destruction entail permanent loss of function. In other words, we require to learn from the cerebral physiologist in what circumstances and to what extent can we get *compensation* of function when various parts of the (*a*) cerebrum and (*b*) cerebellum are destroyed.

(*a*) As regards the cerebrum, from the clinical records we can generalise that special motor functions cannot be restored if the whole of their cortical representation be removed. The same thing is probably also true of the special senses and certainly is true of the hemianopic representation of sight. Succinctly stated, this amounts to the generalisation that compensation is not possible after the destruction of middle level centres. (See Fig. 1.) The higher sensory representations and *a fortiori* the intellectual functions are, on the contrary, not permanently abrogated by the destruction of any one part of the cerebral hemisphere. The net conclusion, however, must be that as little injury as possible should be done and no more removed than is absolutely necessary, it being always understood that this does not apply to the skull but only to the nerve structures. The opening in the skull must always be free to allow of a proper survey of the brain.

(*b*) As regards the cerebellum, this question of compensatory power is no less interesting in the study of a homogeneous structure like the cerebellum, and has assumed a particular importance in the present subject because of Professor Frazier's proposal to extirpate the lateral lobe of the cerebellum in preference to pushing it aside by displacement for the purpose of reaching deep-seated tumours. My own experience is against such extirpations for convenience. In fact, I regard them as an unnecessary mutilation, though quite admitting that in the process of removing a large tumour in that region the cerebellum is considerably bruised when so pushed aside. I ought to add that although I have removed a considerable number of lateral recess cerebellar growths I have never found it necessary to do more than compress the cerebellum aside. (See Fig. 2.)

As to whether there is loss of function from such displacement involving bruising of the cerebellum I have followed up the longest surviving case that I could find in the Queen-square series—namely, one of cerebellar tumour and cyst combined, which I operated on 11 years ago, when the patient was a boy of 14 years. He is now a healthy young man of 25 years. In this case the tumour was a large one, situated in the right lateral lobe of the cerebellum, which was consequently markedly compressed, and probably the dentate nucleus of that side was also affected. The only indication of loss of physiological function that he now presents is a slight unsteadiness of the hand when he is particularly fatigued, as, for instance, after a long bicycle ride. He has plus tension of the normal cerebro-spinal fluid. As far as the cerebellum is concerned, whether this remarkable recovery is due to restoration of function of the bruised portions or to compensation from the uninjured part cannot yet be determined with certainty (I believe the former), but the conclusion I would draw is that we should preserve as much as possible of every portion of the encephalon which is not absolutely shown to be diseased.

At any rate, cases either cerebral or cerebellar dealt with on these lines show a remarkable power of recovery of function.

CONSIDERATION OF THE DETAILS OF OPERATIVE PROCEDURE.

(*a*) *Previous preparation.*—The general preparation of the patient by dieting, enemata, &c., is the same as for all operations. In a few instances I have found calcium chloride of probable service in cases where oozing from the bone or superficial tissues was to be expected, as in cases of penetrating endotheliomata of the skull. The head and cavities in relation to it having been thoroughly disinfected for two or more days with sublimate and carbolic acid, the patient is placed on the table in such a position that while the head is elevated to diminish the pressure in the venous sinuses the shoulders are also slightly raised, so that the glottic respiration is not interfered with. If the operation is to be on the cerebellum the patient is placed on his side with the uppermost arm drawn downwards. By these simple means complete access can be gained for any operation on the encephalon without subjecting the patient to constraint which affects both the circulation and the respiration. This question of posture of the head is no mere matter of convenience to the operator: it is an extremely serious one to the patient for the satisfactory performance of the operation and is only to be secured by having a suitable head-rest, such as the fork-rest of Professor Frazier or the one I use.

(*b*) *Anæsthesia.*—Of the general anæsthetic substances at our disposal, therefore, there are at the present time two for practical discussion—namely, ether and chloroform. Of these two, numerous experiments on animals in 1883–85 proved to me the striking disadvantages of ether, in spite of its greater safety, which it owes to its far lower physiological toxicity on nerve tissues. Apart from this specific difference the most important contrast between the two substances is due to their respective effects on the blood circulation. Ether directly causes, besides a rise of the blood pressure, a notable increase of the blood venosity and therefore much additional and troublesome hæmorrhage. In its later effects—that is, on recovery—it causes excitement, as well as in many cases notable headache and, of course, vomiting. Ether I regard, therefore, as inadmissible as an anæsthetic in operations on the central nervous system; but in saying this I must not be thought to be criticising my colleagues, especially American surgeons, who have accomplished most brilliant results under ether narcosis. Chloroform, *per contra*, causes a fall of blood pressure with relatively less blood venosity, although this is by no means absent, as will be seen below. It therefore does not aggravate the bleeding or embarrass the respiration by causing bronchorrhœa. Chloroform, however, as already stated, is more dangerous. It kills by paralysis of the respiratory centre as often as, or more often than, by paralysis of the heart, while all cases of increased intracranial tension (as is now well recognised) are liable to die at any moment from sudden paralysis of the respiratory centre. In the literature of the early days of cerebral surgery may be found instances of death on the operation table. I have no doubt that these were due to failure of the respiratory centre owing to a dose of chloroform having been given which, though perhaps not necessarily lethal in an ordinary case, was fully so to a patient whose bulb was hampered by previous tumour pressure. Chloroform, therefore, must be used with caution in the surgery of the nervous system to avoid giving a dose which might bring about fatal arrest of the respiratory centre.

The immediate problem is how to regulate the dosage of chloroform, and let me say in passing that the whole of my consideration of this question is applicable to all operations and not only to those on the central nervous system. Yet, curiously enough, because the early efforts of Snow, Clover, and others to obtain the administration of such a drug in known quantities were not entirely successful, the present haphazard and dangerous method of unknown dosage became customary and universal. At the original suggestion of Dr. A. Waller I obtained on *July 10th*, 1901, from the Council of our Association, the appointment of a research committee to secure data for the administration of chloroform in known doses, commencing with its precise quantitative determination. The results so far obtained have already proved of notable value. The committee has found that less than 2 per cent. of chloroform vapour in the atmosphere breathed by a patient is enough to produce deep narcosis and that a much smaller dose is required to maintain unconsciousness to pain. Various apparatuses have been devised to give known percentages of chloroform. Of these I have worked practically entirely with Mr. Vernon Harcourt's.

Much has been written on the subject of chloroform administration, but I must state categorically what I believe to be the most profitable way in which it can be used in operations on the nervous system and how its disadvantages can be mitigated or avoided. If the mask of the inhaler be made to fit by wet aseptic towels the amount of the dose

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In predicting what will be the condition of vision after surgical treatment of the optic neuritis everything depends upon the care with which the ophthalmoscopic appearances of the disc are interpreted. Yellowish-white stippling, patches of exudation, or opal white atrophic changes, especially when associated with macular figures, all indicate that the secondary changes in the disc are likely to be permanent, and therefore in proportion to their development so the vision will be impaired, whereas when the loss of vision has been dependent simply on the swelling of the disc then not only is the sight saved but largely improved. For some further discussion of this most important point from the point of view of the ophthalmologist I would refer to Mr. Leslie Paton's recent analysis of the Queen-square cases which contains many of the results of my operations.

One more point must be mentioned in connexion with optic neuritis because although of more importance in diagnosis than technical procedure I find it is of the utmost value in indicating to the surgeon on which side he should operate. I refer to the localising value of the incidence of the optic neuritis. Varying statements have been made on this subject from time to time—namely, (*a*) that the optic neuritis begins on the side of the lesion; (*b*) that it begins on the opposite side of the lesion; (*c*) that sometimes one thing happens and sometimes the other according to the position of the lesion in the skull—for example, whether above or below the tentorium and according to the nature of the lesion. I wish to lay down the proposition drawn from an examination of my own cases of intracranial tumour that the optic neuritis commences on the side of the lesion. I am quite aware that true exceptions may yet be found to this rule, but I would point out that some of the exceptions hitherto described have not been real; that in any given case it is not a question merely of the number of dioptres of swelling of the disc, but it is also a matter of the anatomical changes in the disc; and, finally, that by the time the patient comes under observation the disc on the side of the lesion may be actually subsiding into decadent conditions at a time when the opposite disc is rising into its maximal swelling.

To sum up, then, during the past 20 years we have learnt that although the old procedure of de Wecker of incising the swollen sheath of the optic nerve in the orbit is of no avail we can with certainty avert blindness by opening the subdural space early in cases of intracranial disease. The opening is to be made preferably in the basal temporal region of the right side—that is, assuming that no attempt is made to attack the disease itself.

respiration, the maintenance and control of the blood pressure, and for the maintenance and control of the temperature of the body. Hence the only way in which we can adequately examine into the subject is by systematic discussion of these several points.

Fortunately the clinical investigation of the first—the alteration of the intracranial tension—has been rendered more easy by reason of the procedures adopted during the last 13 years. In 1893, at the discussion in the Section of Surgery of this Association at Newcastle, I pointed out that the early statistics of intracranial operations showed that the majority of deaths occurred from a severe degree of shock which could be in great part avoided by dividing the operation into two stages, the interval between them being about five days.

The first stage consisted of the opening of the skull, the second of opening the dura mater and removal of the lesion. On the same occasion I also drew attention to the fact that, although at the second stage the dura mater was opened, the removal of the tumour was often attended by relatively little shock. Subsequent experience has fully confirmed these statements and shown that it is, in fact, the opening of the skull which causes most general depression of nerve energy and most alteration in the circulation.

[The lecturer then briefly dealt with the methods of opening the skull, pointing out that the indications were to employ little vertically applied force, and to avoid as far as possible all pressure on the brain and dura mater; he then passed to the next practical question—the influence of the region opened.]

ALTERATION OF INTRACRANIAL TENSION.

(a) *Influence of region of skull opened.*—This introduces a very important point which was first raised by Duret some 30 years ago and has attracted the attention of most surgeons who have more especially operated on the cerebellum. It is obvious that, inasmuch as the nerve centres of organic representation are situated in the posterior fossa of the skull, opening this region might theoretically be expected to cause more shock symptoms than the opening of other parts. No statistics can give a dogmatic explanation of this or any other clinical matter, and in fact every case forming the material for our present statistical analysis in which death occurred from shock after the first stage (six of the total number of cases) was complicated by the pressure of the lesion being only partly diminished, while in two instances there was, in addition, persistent hæmorrhagic oozing; but on taking all the cases together they give the following result, which is sufficiently demonstrative:—

	Proportionate ratio.
"Motor area"	1 death in 27 operations
Parietal and post-parietal regions	1 „ 19 „
Frontal region	1 „ 15 „
Temporal region	1 „ 12 „
Cerebellar region	1 „ 10 „

If, therefore, a line be drawn from the frontal eminences to the occipital protuberance it is obvious that more shock results from operations below that line than from above and also as we proceed from the frontal to the cerebellar pole of the encephalon. Duret's conclusion was that pressure applied to the frontal regions specially produced lethal effect by direct transmission to the medulla along an axis parallel to such a line and I shall show how such mechanical effects can, as far as possible, be avoided during operations on the basal parts of the brain.

(b) *Production of von Bergmann's œdema cerebri.*—The surgery of the central nervous system has been enriched by many contributions that have been made to it by von Bergmann, but on no point more particularly than that of the causation and frequency of œdema of the nerve tissues (see especially his "Kopfverletzungen" and later, "Die chirurgische Behandlung der Hirnkrankheiten," 1889, p. 118, et seq.). The readiness with which the cerebrum and cerebellum become œdematous is remarkable, but the circumstances in which it happens are not at all easy to understand and the facts of a large series of cases do not fall into line with von Bergmann's generalisation—namely, that œdema necessarily occurs whenever the skull is freely opened. Thus, after the second stage of an extirpation in which the skull has been very freely opened and a tumour removed there may be only a very moderate degree of œdema of the hemisphere operated upon, which, like all traumatic œdema of the brain, arrives at its maximum in from three to four days and disappears without any complication. On the other hand, when the skull has been freely opened in the first stage and the dura mater left intact, if the pressure of the growth is considerable, that may be accentuated by the development of a markedly œdematous condition around the focus of pressure. It is, of course, quite comprehensible that this is owing to the fact that a slight relative increase of tension may unfavourably affect the walls of the cerebral blood-vessels which are still under compression and bring about a Cohnheim effect. That this does occasionally occur is proved by the very rare phenomenon of translation of the red blood corpuscles into the œdematous tissue.

(c) *Exploratory operation.*—The statistics of the National Hospital for the Paralysed and Epileptic throw a good deal of light on this subject and show that unrelieved pressure is a matter of great practical importance in respect of ordinary palliative operations performed to abolish optic neuritis and relieve the headache—in short, to the procedure to which Professor Cushing has recently given the name of "decompression" operations. I will take this point now. Thus, of 13 cases which died from shock after the second stage, in seven by reason of failure of topographical diagnosis, the pressure was not relieved directly over the seat of the lesions, whereas in six cases in which a tumour of the brain was diagnosed and correctly localised, but in which removal was not attempted owing to the size of the growth and other reasons, no patient died. A comparison of this kind is sufficient, I think, to warrant the statement that the risk of an operation for decompression is greater if the opening for the relief of pressure is not made directly over the lesion. Precisely the same point is borne out with even greater distinctness by the figures showing the relative risk of operating with and without a correct diagnosis. Thus, of 79 cases in which a correct diagnosis was made and the tumour successfully removed, seven cases died from shock—a little over 8 per cent.; whereas in 16 cases of tumour which were incorrectly diagnosed, and consequently not removed, six cases died from shock—approximately 37 per cent. It is, perhaps, worth while adding that practically in all these latter cases the tumour was a glioma or gliomatous sarcoma—that is to say, a diffuse growth the diagnosis of which is always the most obscure, and at the same time a form of neoplasm in which circulatory changes and œdema are always liable to occur. I think that these data enable us to form a more or less correct estimate of the risk of an exploratory operation in cases of doubtful diagnosis.

TREATMENT OF SHOCK.

As I have suggested above, the treatment must be arranged according to the symptoms which threaten life, and those may be grouped according as they affect (a) the respiration, (b) the circulation, and (c) the body temperature. Depression or aberration of special nerve functions—for example, motion, sensation, &c.—need not be a source of anxiety, as if the centres of organic life are restored recovery of the others will certainly follow in proportion to the extent to which their representation has been preserved.

(a) *Respiration.*—The embarrassment of the respiratory centre in a stage of shock shows itself in increasing degrees of severity as follows: (1) shallowness of the respiratory movement; (2) periodicity and grouping of the respiratory movements; and (3) typical Cheyne-Stokes respiration. These changes are best dealt with by inhalations of oxygen until the effect of nutrient enemata (*vide infra*) begins to make itself felt, but it is above all in depression of the respiratory centre that strychnine is of use in combating shock. In speaking thus favourably of strychnine I nevertheless agree with the elaborate and useful work of Dr. Crile on this subject and believe that in many cases strychnine is used too empirically, too freely, or with undue reliance on its powers, and that in repeated doses it has a depressant action on the circulation. As a stimulant of the bulbo-spinal centres strychnine is, of course, unrivalled, and when any marked alteration in the rhythm of the respiratory centres shows itself a small dose should be given hypodermically, but for the above-mentioned reasons it does not seem advisable to give such a drug beforehand, as is sometimes done either immediately previously to the operation or at the end thereof, with the idea of anticipating difficulties resulting from shock. It is also not to be forgotten that the usual functional depression of the respiratory and the cardiac centres which immediately precedes chloroform vomiting is particularly marked in these operations and often causes unnecessary alarm.

(b) *Circulation.*—In considering the depression of the given will be under complete control. With the dose commencing at 0·5 per cent., and rising in from one to two minutes to 2 per cent., the patient ought to be ready for operation after from five to eight minutes. If the initial narcosis be complete no adverse event—for example, vomiting—will occur. If it be incomplete when operation is commenced various drawbacks will appear. This is, of course, well recognised as a general principle by anæsthetists, but is so salient a point as to deserve repetition.

Having now, by means of the Harcourt or other regulator, the power of giving known doses, we ought to arrange the narcosis strictly according to the nerve excitations it is intended to drown and so avoid contributing to the patient's discomfort by giving unnecessary quantities of the drug. As a rule, the amount of 2 per cent. is given for about five minutes before the incision of the skin and reflection of the flap which constitute the maximal pain period of the operation. This completed, the dose can be lowered by pushing the tap back and the bone be removed at 1 per cent. As the dura mater is a sensitive membrane supplied by the fifth cranial nerve the dose should be somewhat raised just previously to its incision to prevent reflex starts or movements on the part of the patient. As soon as the dura mater is opened the encephalon can be dealt with without causing any pain except if the course of the fillet or one of the peripheral sensory cranial nerves be accidentally irritated. Consequently all this part of the operation is done under less than 0·5 per cent. of chloroform in the air respired, an amount which, of course, is far below that required in the induction stage. Indeed, in many cases (the edges of the wound being as usual thoroughly protected by gauze) the chloroform can be entirely shut off, the longest period that I have been able to do this for being 20 minutes. This, however, was a case of a cerebellar tumour in a child and I have never been able in the adult to exceed 12 or 15 minutes before the return of the reflexes of the limbs necessitated the renewed administration of the drug. After the encephalic lesion is dealt with the percentage always should be raised to about 0·7 or even 1 per cent. to provide for the insertion of the sutures in the skin, as naturally that is a strong pathic stimulus. Finally, this percentage is continued to the commencement of the dressing to prevent the accident of vomiting occurring before the protecting rubber bib can be applied.

(c) *Maintenance of the body temperature.*—The general anæsthetic has, of course, a high degree of power to lower the temperature of the body and therewith to emphasise the shock of the operation. For this reason I think that all operating rooms should be at a temperature of not less than 75° F., and that the operating table should be provided with a suitable hot-water bed. While, however, cooling due to the anæsthesia can thus be readily combated, my experimental work of the last 20 years on both the carnivora and monkeys has convinced me that to maintain the physiological energy of the central nervous system and prevent shock thereto it is necessary during all operative procedures on the skull and its cavity to prevent cooling by radiation from the brain exposed in the wound. The wound therefore should be constantly irrigated, usually with a solution of sublimate of 1 in 10,000 strength, or with saline solution. These lotions are put into the irrigator at a temperature of 115°, the use of the hot irrigation fluid being not only to prevent cooling of the nerve centres but to arrest capillary and arterial hæmorrhage.

(d) *Hæmorrhage.*—The first general principle is the recognition of the fact, originally established by Cohnheim's researches, that as few vessels as possible should be obstructed; and, again, experiments on animals show that in encephalic surgery this principle must be followed as closely in the case of the veins as in the case of arteries. For instance, in the monkey the blocking of the large temporo-sphenoidal vein and the most anterior external occipital vein produces softening of the posterior part of the hemisphere. In pursuance of this principle, where it is necessary to remove large portions of the brain, the branches of vessels to be divided should be severed as far as possible from the trunk. A few points in detail must now be discussed according to the nature of the vessel.

From time to time it has been proposed to tie the main arteries—for example, the carotid—with the view of producing a large control of the blood flow from the cerebral arteries. But a thorough consideration of the cases in which this has had to be done by reason of operative necessities has convinced me that it is a measure to be avoided as far as it possibly can be. For instance, when ligature of the carotid has been found necessary in the case where a portion of the hemisphere has been partly displaced and compressed to gain access to a basal tumour, serious and even fatal secondary œdema and softening have proved the adverse influence of this proceeding. On the whole, I cannot suggest anything better than the original plan of tying all the arteries around the lesion before extirpating it; and inasmuch as all arterial supply of the encephalon is necessarily from below upwards, it is better to commence the excision of a lesion by beginning the incision in the brain below and carrying it upwards and towards the mesial plane.

Although it is necessary that every bleeding artery should be secured by ligature, it is remarkably easy to arrest capillary oozing and arteriole oozing from the brain by the simple means of hot irrigation. The temperature of the fluid should not exceed 115° F.—that is, about 46° C., but it must not fall below 110° F. or 43·5° C. If a larger irrigator be used it is practically an easy thing to keep the fluid at the desired temperature on account of its mass and it is gratifying, especially in a cerebellar wound, to see the oozing gradually cease during the steady flow from the irrigator "hose" pipe.

One of the most striking features of the physiological action of chloroform on the mammalian animal is that it soon (from 10 to 20 seconds) causes a marked fall in blood pressure. Consequently when a lesion is about to be extirpated and there is reason to expect considerable oozing, or when the brain is obviously turgid with congestion, I always ask that the chloroform percentage should be raised for, say, from a quarter to half a minute to 1 or 2 per cent. This at once induces a convenient, proportionate, and, of course, temporary anæmia.

The consideration of capillary oozing and hæmorrhage brings us logically to the question of bleeding from the venous system, because capillary oozing is so dependent on the venous pressure. The same steps, therefore, which diminish the latter will also reduce the former. All bleeding from the veins and sinuses in bone can be immediately and absolutely certainly arrested by plugging with wax if the periosteum round the hole is completely removed. No difficulty, therefore, should ever arise from hæmorrhage from this cause. It is otherwise with wounds of the sinuses and Pacchionian bodies and venous lakes in the dura mater. The bleeding from these, however, no matter how severe, is immediately controlled by pressure with the point of an instrument, while the opening is closed by a fine lateral suture on a round needle in the usual way. The principal veins if necessary are, of course, ligatured like arteries by passing a round needle beneath them, and there only remain, therefore, for consideration the control and arrest of venous oozing.

[*Sir Victor Horsley here referred to the influence of oxygen in the control of venous and capillary oozing and then proceeded to discuss:—*]

SHOCK.

Death occurring within the first 24 to 48 hours after the operation is from what is termed "shock." Since shock or sepsis are practically the only causes of death which can be provided against, the prevention of shock lies at the root of successful prognosis as well as of further improvement in surgical technique. I quite agree with Crile, who has done so much to elucidate this all-important question, that we should discriminate between shock and collapse; and that while collapse is a temporary accident in which the patient's nerve centres are capable of being revived by ordinary clinical means, shock, on the other hand, is a post-operative condition which deepens after the operation for a variable period and which if it terminates fatally destroys life, as a rule, within 24 hours. It is this dangerous phenomenon which we must now discuss.

From observation of the condition of patients after all kinds of operations it is evident that the phenomena of dangerous shock differ according to the part of the body operated upon, according to the condition of the patient before the operation, the concurrence of accidental hæmorrhage, &c. The alteration of the intracranial tension which is produced by opening the skull of itself necessarily causes shock after encephalic operations in a manner which is somewhat different from that caused by other operations. Therefore I think its treatment must also be different. The nervous system is responsible for the maintenance of the encapsulated tumour, every attempt ought to be made to exert a leverage or traction, so that the direction of the force is always outwards.

[These principles underlying the avoidance of shock having been fully discussed, we may turn to the question of septic infection, said Sir Victor Horsley, pointing out that when many surgeons can show an unbroken record of successful operations for the radical cure of hernia or for appendicitis in the cold stage it is not completely realised how very different should be our estimate of the proclivity of the central nervous system to invasion by septic micro-organisms and the extremely feeble degree of its resisting powers. Personally he believed that the present-day precautions are sufficient at the time of operation, especially if the irrigation fluid used be a weak antiseptic lotion; that for the subsequent dressings it is essential to use an antiseptic (he had only complete confidence in a mercury salt), and that so long as the cerebro-spinal fluid continues to escape the most vigorous disinfection of the skin and frequent changing of the dressings must be carried out. He concluded by re-asserting his view that the less drainage employed the better and consequently that every effort should be made to close the skin wound as early as possible. He continued:—]

DISPLACEMENT OF THE BRAIN.

With these general considerations before us there remains the discussion of particular procedures. One of the most important of these is displacement of the brain which must be resorted to to reach tumours at the base. I mean displacement of the lobes or regions. My first attention to this subject was drawn by being requested in 1889 to operate on a tumour pressing on the front of the optic chiasma and for this purpose I raised the frontal lobe but found that the tumour was really a cystic adeno-sarcoma of the pituitary gland and was inoperable. To facilitate the elevation of the frontal lobe some of the veins entering the longitudinal sinus therefrom were ligatured. On the death of the patient some years later I found that there was considerable softening of part of the frontal lobe in the area drained by these veins and not directly implicated by the tumour. This and subsequent evidence referred to above led me to the following conclusions, which I have repeatedly made use of and found of service, especially in ten cases of operation on the pituitary body. The cerebral hemisphere is anchored by emissary veins to the dura mater at various points (see Figs. 2 and 3): (1) in the mesial plane—that is, to the longitudinal sinus; (2) laterally, chiefly by the temporo-sphenoidal vein to the lateral sinus opposite the asterion; (3) to a less degree by the external occipital vein; and (4) by the anterior temporo-sphenoidal vein, both of which last are small vessels but being almost terminal require to be respected none the less. The hemisphere can be readily compressed upwards by inserting a flat spatula cautiously beneath it and between the veins just described. The next question, of course, is, What happens to the hemisphere compressed? This entirely depends on the mode of compression. If the compression is, as it should be, gradual, the soft nerve tissues soon mould, with very little internal derangement; but it is easy to produce, with too much and too rapid application of pressure, laceration of, and ecchymotic oozing between, the fibres of the corona radiata. Such compression contusions of the basal portions of the hemisphere are relatively unimportant, because they relate to portions of the cortex of which the function is either readily compensated when lost or of very wide representation. The inspection of the deep parts of the skull by displacement of portions of the brain entails trouble to the assistant, because it is certainly disadvantageous to move the retractor when once properly in position. So far I have spoken of the cerebrum. I think that precisely the same principles should prevail in the case of the cerebellum. With this procedure properly applied to the temporal lobe it is remarkable how much can be seen and correctly examined. With a good illumination the crura cerebri, the circle of Willis, the pituitary body and internal carotid, the second and third nerves come into view. I have in two cases after removal of a pituitary tumour inspected the base of the brain further by means of a small rhinoscopic mirror placed in the sella turcica; and it is very easy by continued but gentle pressure with a copper spatula, or with a spatula of suitable size and with a strong headlight, to inspect the lateral region of the cerebellum and medulla oblongata with the issuing nerves. (See Figs. 1 and 2.) For these reasons I venture to take exception to the step of removing portions and lobes of the encephalon if these impede the approach to the lesion.

THE VENTRICLES.

In this connexion—namely, procedures necessary for the examination of the deeper portions of the brain—a few moments must be devoted to the matter of exploration of the ventricles. Considering that for 1400 years (as we know historically) the lateral ventricles were looked upon as the most important part of the brain, inasmuch as the animal spirits, or, as we should now say, nerve energy, originated therein, it is not surprising to find that special danger was supposed to attend their opening or surgical interference. Undoubtedly their continued drainage exposes the patient to the particular risk of sepsis, but apart from this there is no reason why they should not be freely dealt with like other parts of the brain, opened and portions of their wall removed as the case may require, provided that one precaution is taken, namely that blood is prevented from flowing into the ventricular cavity. This, of course, may be obviated at the time of operation by a simple plug and when the removal of the lesion is completed a temporary tampon is left in for 24 hours, by which time all the oozing vessels are thrombosed. I may, perhaps, on this question draw attention again to my paper of 1893, because the case therein referred to of death by intraventricular filling was an instance of persistent oozing gradually forcing its way through the softened roof of the unopened ventricle.

PROCEDURES IN THE TREATMENT OF MALIGNANT DISEASE OF THE ENCEPHALON.

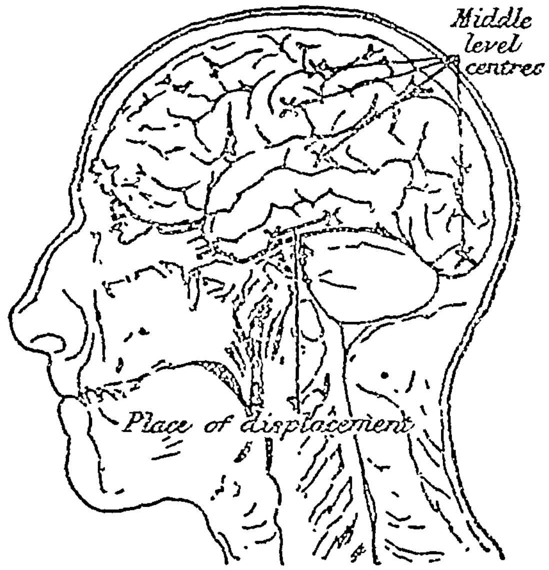
The analysis of the cases at the National Hospital for the Paralysed and Epileptic also brings out in very strong relief the fact that where the technique of intracranial operations fails most is the treatment of malignant disease. This, therefore, will fitly form the last chapter of our considerations. All tumours which, growing from the meninges, penetrate the brain, or which are encapsulated, such as fibromata, myxomata and endotheliomata, tuberculomata and gummata, can all be excised with a good permanent result. The comparison between simple and malignant disease is well shown in the accompanying table of 55 tumours, cases in which the patients' histories have been followed up to date.

Cases at the National Hospital for the Paralysed and Epileptic. Recurrence Table of 55 Tumours.

		Cases.	
Glioma	19	23	Recurrence within 2 years, 20.
Sarcoma	4		
Endothelioma		8	1 recurrence 3 years later; died from heart disease, valvular. 7 alive well, longest 5 years.
Tuberculous ...		4	2 died within 3 months from tuberculous meningitis. 2 alive well, longest 7 years.
Gumma		8	No recurrence.
Fibroma		4	No recurrence.
Cysts		5	No recurrence.
Adenoma ...		Pituitary 3	1 recurrence.
Adeno-sarcoma			

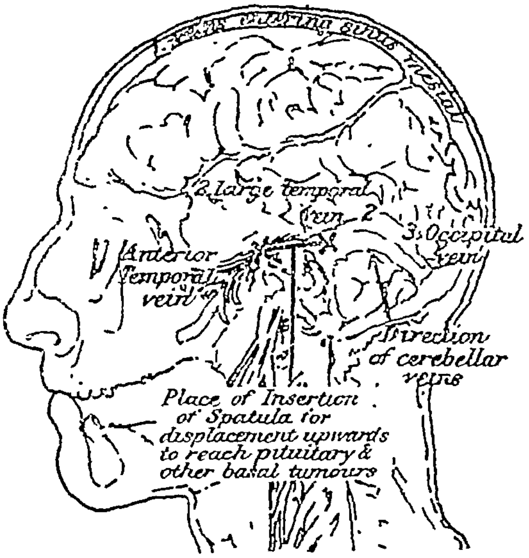
But unfortunately a considerable proportion of cases of cerebral tumour are essentially malignant and by reason of their diffusing through the nerve tissues are very difficult to deal with so as to produce a complete and radical cure. These are the gliomata or glio-sarcomata. One elementary point of difficulty arises from the fact that they not infrequently reach a considerable size before they produce sufficient symptoms to render a topographical diagnosis accurately possible. Further, pathological anatomy does not yet tell us how to classify these growths or how to determine what is their exact point of origin; consequently it is very difficult to attack systematically their growing focus or plan correctly the complete extirpation of the infected tissues. Further, the regions of the brain surrounding the tumour are commonly œdematous, and this introduces a fresh difficulty—namely, to decide between the infiltration of the brain tissue with neoplastic growth and with simple œdema respectively. The Queen-square series of cases in the foregoing table show that recurrence of malignant disease was observed in no less than 20 out of 23 instances. I have on several occasions attempted, with but very partial success, to obtain by extirpating such recurrences the same striking result as Bramann in his classical case, but undoubtedly the treatment of this class of disease will not be surgically satisfactory until the diagnosis is so far improved as to make it circulation by shock we must again express our indebtedness to Dr. Crile for having shown that this part of the subject is not merely a question of the central or cardiac maintenance of the blood pressure but to a large extent the lack of influence of the vaso-motor system. I think the beneficial effects of pressure on the surface of the body can be obtained by bandaging the limbs with cotton wool. It remains, therefore, to consider what drug treatment is to be resorted to. As regards cardiac stimulation, that has always seemed to me to be a clinical error. The heart does not require accelerating as a rule but it does require feeding. Undoubtedly repeated enemata (every two hours) of four ounces of beef-tea in which is dissolved Brand's essence or pancreatised milk are the readiest means of beginning to follow this line. If time presses a very small dose of atropine is useful and in cases of peripheral vaso-motor paralysis digitalis is also useful, but its use must be at once stopped if there is any acceleration of the pulse. It is, I believe, of universal experience that, compared to the foregoing drugs, alcohol is not worth mentioning, and as it has very definite depressant after-effects I think its use is to be avoided. A small quantity of strong coffee gives all the psychic stimulation of alcohol without its depressant effects and even if it be vomited within a few minutes benefit results.

FIG. 1.



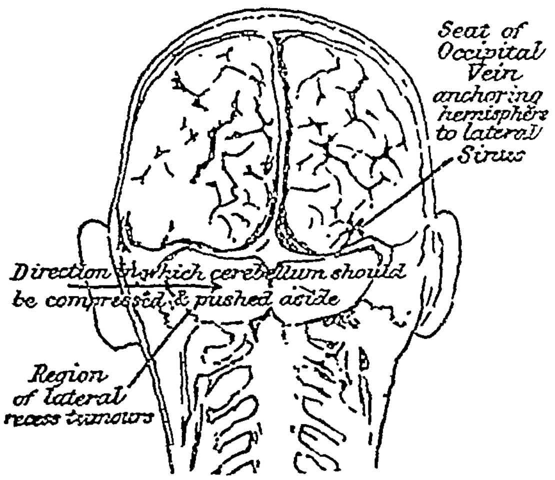
From Frazier's "Guide to Operations on the Brain."

FIG. 3.



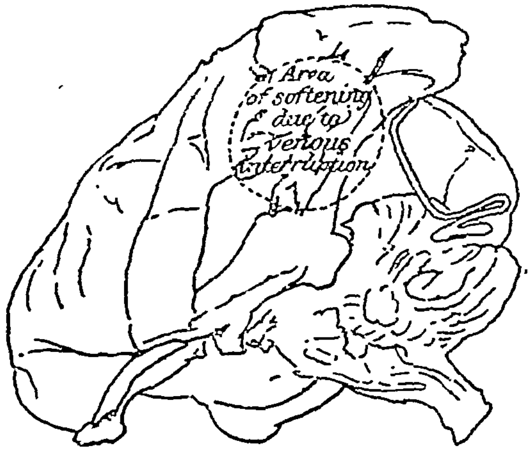
From Frazier's "Guide to Operations on the Brain."

FIG. 2.



From Frazier's "Guide to Operations on the Brain."

FIG. 4.



Brain of macaque monkey, showing effect of vein ligature for displacement of hemisphere.

(c) *Body temperature.*—In a large majority of cases the body temperature is somewhat lowered but in certain instances, notably in children, one of the shock effects of operation is the losing of heat control and consequently the temperature, instead of falling, rises from the moment the patient is returned to bed. This rise may in a child become hyperpyretically dangerous but can, of course, be, as a rule, like all neurotic pyrexia, controlled by cold sponging the upper limbs.

In leaving the question of shock I desire once more to assert that the main principle of operating on the central nervous system should be the avoidance and prevention of all conditions which lead to shock—namely, cooling and mechanical disturbance of the central nervous system. In respect of the necessity of producing less disturbance or chance of pressure upon the brain beneath, Mr. Spencer found in my laboratory that even slight pressure on the surface of the hemisphere materially affects, in accordance with the principles of Duret, the activity and regular function of the respiratory centre. So, too, in the second stage all the necessary instrumental procedures must be effected with as little pressure upon the brain and nerve tissues as possible. Sponging, for instance, should be avoided unless absolutely requisite; and, indeed, the practice of hot irrigation renders it very unnecessary. In particular, during the separation and extraction of an the head of "puerperal fever" are in the main cases of septicæmia arising as the result of infection introduced from without in connexion with the process of labour and the lying-in, and that this septicæmia is to be prevented by the prevention of this infection. In addition to this, the principal group, there remains a small fraction of cases in which the infection, although introduced from without originally, has remained almost dormant within the body until labour has provided the opportunity for its extension. The theory of a specific epidemic disease has vanished.

The next address was delivered in 1893 at Newcastle-on-Tyne by our revered colleague, Dr. C. J. Cullingworth, who is occupying his leisure from active hospital work by editing the *British Journal of Obstetrics and Gynæcology*. The subject was Pelvic Peritonitis in the Female and the Pathological Importance of the Fallopian Tubes in connexion therewith. The address remains as a landmark in our knowledge of the pathology of salpingitis; it led to the general appreciation by British gynæcologists of the true pathology of perimetritis, as well as to advances in abdominal surgery in the treatment of these cases.

In 1900 an address was given at Ipswich, where I had the honour to be President of the Obstetric Section, by our friend Dr. W. J. Smyly of Dublin, whose work at the Rotunda Hospital is well known to you all, and who has since received the well-deserved honour of knighthood. The subject was Maternal Mortality in Childbed. Its chief importance as a landmark is in its indication of the simplification of antiseptic measures for the protection of parturient women, as, for instance, the abolition of the douche as a routine practice, and in its insistence on the substitution as far as possible of external or abdominal for internal or vaginal examinations during labour. Sir W. J. Smyly does full justice to the pioneers in the fight with puerperal fever, but like Dr. Kidd, and indeed other writers until quite recently, he does not mention the astounding evidence collected by Oliver Wendell Holmes, whose essay on the contagiousness of puerperal fever was placed in my hands by a non-medical friend in my first year as a medical student and has ever since remained in my memory. The profession is indebted to Dr. Cullingworth for having reminded them of the great service which Oliver Wendell Holmes rendered, though with so little immediate fruit.

At the meeting at Manchester in 1902 Professor Sir William Japp Sinclair discussed Carcinoma in Women, chiefly in its clinical aspects. In this address he expressed his firm conviction that the secret of cancer will be discovered (if ever it is) by the study of cancer of the uterus, although his reasons for this view are not very clear. He is less pessimistic with regard to the results of vaginal hysterectomy than many operators and was not at that time in favour of abdominal hysterectomy in these cases.

Such an address as I am requested to give on this occasion should, if possible, deal with some point of general importance and interest rather than of personal investigation or experience, and I can imagine none at the present time so important to the present and future members of the Association as the efforts which are being made to improve the teaching and training of our medical students in practical obstetrics. The faults of our methods of teaching are obvious to every thoughtful person. The difficulty in adequately removing the deficiencies 'is undoubtedly very great. May we first consider some of the most obvious imperfections? These are for the most part due to the difficulty of providing practical clinical teaching. There is no large maternity hospital in London capable of accommodating the students of the various medical schools, for the four lying-in hospitals are primarily charities for the relief of poor women and training schools for monthly nurses and midwives. Queen Charlotte's is the only lying-in hospital which admits medical students or qualified practitioners to its practice. The students, however, who take the month's course obtain clinical teaching and experience of a kind not to be obtained easily elsewhere, but unless the hospital is prepared to give up its principal work—the training of midwives and monthly nurses—in favour of the medical students, its 70 beds, accommodating 1600 in-patients in the year, can only provide the necessary experience for a small number of the students of London. At the present time the practice is attended chiefly by qualified men who, having found out their lack of experience, are glad to make use of the opportunities for instruction to be obtained there. The other three lying-in hospitals provide between them 100 beds but they do not at present admit medical students. So far as teaching is concerned their work is limited to the training of midwives and monthly nurses. The number of women from all parts of the country seeking to be trained as midwives is continually increasing and to meet their requirements the capacity of these lying-in hospitals is fully taxed. All the medical schools and lying-in hospitals have an extern maternity department and in this department the students, under more or less organised supervision, attend poor women in their own homes. Even in the best organised of these maternities the supervision and instruction of the students are very inadequate, for the resident medical officer in charge of them is without that constant guidance and close personal contact with his chief which fall to his lot when working in the wards of a hospital. It is impossible for it to be otherwise and it speaks well for the general standard of practical common-sense that so few calamities occur. When attended by students *who have had the necessary preliminary clinical teaching* these extern maternities provide the most important and valuable training that any medical student can obtain, for, as in private practice, he is then placed almost entirely on his own resources. At any time he may have to deal with one of the sudden emergencies of midwifery, and so he begins to acquire that feeling of personal responsibility for the direction and management of the case which it is so difficult to arouse in the student while at work within the hospital where every important detail is supervised by the responsible officers. Thus, invaluable training is at hand for every student in the maternity districts and their responsibilities in degree and in value are not exceeded by those of any house surgeon or house physician—offices which can only be held by a small minority of the best students.

Another factor which has delayed the provision of adequate teaching in obstetrics, not only in England, but probably in other countries, is the old ingrained idea that the process of labour is a simple function of nature, requiring for the most part a competent nurse only, and that the practitioners of obstetrics, although recognised in theory as of equal standing, are to be looked down upon in comparison with their colleagues in the other great branches of medicine and surgery. As the result of this, both in teaching and in examinations, the study of obstetrics has been relegated to a position totally unworthy of its immense importance to the practitioner and to the national welfare.

As Dr. W. R. Dakin pointed out in his excellent inaugural address before the Obstetrical Society of London last year, if only the scourge of puerperal septicæmia can be removed childbed will be robbed of one of its principal terrors, and this long-desired consummation will be nearer its accomplishment when our students are taught practically in the lying-in wards the application to midwifery of the general principles of antisepsis.

As shown in the report of a committee of the General Medical Council just published it is still common in many places for students to be permitted or even encouraged to attend their maternity cases before they have had any adequate instruction in those general principles of medicine and surgery upon which the whole practice of obstetrics is based.

Another defect in the teaching is due to the fact that the lecturers frequently have had little experience in the practice of obstetrics. It is considered essential for the lecturer on medicine, surgery, or indeed any other special subject, to be a man of wide clinical experience and to be in charge of wards devoted to the care of patients suffering from those particular diseases upon which it is his duty to lecture. In obstetrics it is otherwise; the lecturer presides over no obstetric clinique and has often had but little experience. He is an obstetrician in name, not in practice. He probably does not attend 20 cases in a year. His obstetric practice is limited to the few special cases to which he may be called in consultation and his teaching is necessarily of the book, not controlled by that wide personal experience only to be acquired by the constant observation of large numbers of cases such as falls to the surgeon, the physician, or to himself as a gynæcologist in the course of their daily work. They, however, aim at and attain a high standard of theoretical teaching and all credit is due to the men who under these very imperfect conditions have done such admirable work as teachers and investigators. In many of the provincial schools the lecturer is a *successful* general practitioner, to whom the Fates have given a large obstetric experience, but whose scientific training for this work and whose experience as a teacher may have been quite inadequate.

It is essential to have a scheme which shall place the possible to remove the growth entirely with certainty in the first instance.

Effect of Directly Exposing but not Removing Gliomata.

In 1890—that is, 16 years ago—my attention was drawn to the remarkable progress of a case of glioma of the cerebrum which was referred to me by Dr. Buzzard for operation on the understanding that the operation should not be completed if the hemiplegia should be increased or made permanent. The tumour was found at the point diagnosed but it was so large that obviously its extirpation would have been followed by some permanent paralysis. The wound was therefore closed and the patient made a good recovery. Two and a half years later the patient accidentally infected himself with erysipelas and died in another hospital. At the post-mortem examination it was found that the tumour had disappeared, leaving a cicatricial and degeneration cyst. Since then I have operated on ten cases of similar nature but not always defining the tumour itself. In all, however, classical symptoms were present—namely, double optic neuritis, headache, vomiting, and varying motor and sensory paresis, together with severe intracranial tension and bulging of the brain through the opening of the dura mater. I may quote the two most recent of these cases.

The first case was that of a boy who was admitted into University College Hospital with left hemiplegia and Jacksonian epilepsy, optic neuritis, stupor, and vomiting. At the operation I found that at least the middle third of the cerebral hemisphere, principally the leg area, was involved in a dark red diffuse growth. Regarding it as inoperable I closed the wound, hoping that the tumour would undergo retrogression in accordance with the previous cases. This duly happened, and the boy is growing and is bright and intelligent. Examined on July 10th, 1906, two and three-quarter years since the operation, he seems to be normally healthy, except that there is a considerable degree of spastic hemiparesis of the left leg and to a less degree of the arm. Occasionally he has cortical twitching of the left leg. The second of these two cases is that of a medical practitioner, whom I saw in October, 1902, with all the symptoms of a rapidly growing malignant tumour of the left lateral lobe of the cerebellum. As this was apparently confirmed when I opened the skull and dura mater by the extreme turgescence and deep-red colour of the cerebellum, I closed the wound, considering that the original intention of palliation of the headache and neuritis was the only possible treatment. His recovery was, however, so complete that in a few months he returned to his practice, which he has been carrying on ever since. Cases of this kind are clearly comparable to those which Dr. T. R. Glynn has published of subacute encephalitis and internal hydrocephalus simulating cerebral tumour. It is, however, of course, difficult to determine the parallelism between his series of cases and mine, as only in one was an operation performed, but in that instance the relief of the cerebrospinal fluid was followed by complete recovery.

I venture to think that we are justified in making the following general deductions on the question of the surgical treatment of malignant disease of the encephalon: (1) That operation should be resorted to as early as possible; (2) the tumour should be, if possible, freely exposed and examined and extirpated with surrounding tissue; and (3) that if it cannot be removed without undue interference with important or essential structures there remains some possibility of the tumour undergoing retrogression in a certain number of cases.

Conclusion.

In bringing this discussion of but one set of cases to a close some explanation is, I think, due from me why I did not follow the customary course of accumulating the records of as many cases as possible from the literature and basing my deductions on that basis. My reason is that the massing together of cases treated by different surgeons under diffe- rent conditions of operative technique with different clinical histories has always seemed to me an unscientific pro- ceeding. The errors of clinical observation are so numerous that to arrive at correct conclusions we ought to exclude variations of condition as much as possible. I have only now the very agreeable duty of rendering an acknowledgment of my sense of indebtedness to Dr. T. Grainger Stewart, the pathologist to the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, who has with indefatigable industry worked out the clinical records of the cases on which this address is based.

Address in Obstetrics

ON

THE TEACHING OF OBSTETRICS.

Delivered at the Seventy-Fourth Annual Meeting of the British Medical Association on August 21st, 1906.

By W. S. A. GRIFFITH, M.D. Cantab.,
F.R.C.P. Lond., F.R.C.S. Eng.,
ASSISTANT PHYSICIAN-ACCOUCHEUR, ST. BARTHOLOMEW'S HOSPITAL, LONDON.

Mr. President, Ladies, and Gentlemen,—May I be permitted before entering on the subject proper of this address to make a brief reference to the addresses delivered by my predecessors? They are few in number and appear to have been given only on exceptional occasions. That this should be one of those special occasions has been wisely determined by the council of the Association and they have placed on me the responsibility of endeavouring to make some adequate use of the opportunities which such an occasion affords.

The first, and in some respects one of the most interesting, of these addresses was given at the thirty-first annual meeting of the Association, held at Bristol in 1863, by Dr. J. G. Swayne, physician-accoucheur to the Bristol General Hospital and lecturer on midwifery at the Bristol Medical School. Of the many subjects discussed in that address, the obstetric use of chloroform, version in cases of obstructed labour, the treatment of placenta prævia, Cæsarean section, blood-letting and chloroform in puerperal convulsions, the nature of thrombosis and of phlegmasia dolens, and the operation of ovariotomy, almost all are still matters under discussion. As regards the obstetric use of chloroform Dr. Swayne said that although it had been used for over 15 years authors were not agreed as to the extent or the frequency with which it should be administered, and in reading his arguments for and against the use of chloroform we can see that medical men at that time had not learnt how to administer it in such a way as would insure to the patient the needful relief from suffering while interfering as little as possible with the normal action of the uterus. He concluded by saying that in normal labour especially he would not administer chloroform but would rather let well alone than interfere with the course of nature. Apparently very many practitioners of to-day agree with his views, and not having been taught the proper method of administration they allow many a patient to suffer severely during labour without affording them the relief that chloroform can give. Many of us will agree with him in his conclusions as to the treatment of placenta prævia—namely, that the method of version and extraction by the feet must after all be our main resort, being that most often suitable and, be it added, successful. The cases which are exceptional and require other methods are those in which the difficulty of dilatation of the cervix is considerable. Of the other sub- jects which he discusses, that of the operation of ovariotomy (then still in its infancy) must interest us particularly. Here are seen some of the pioneers of this operation: Spencer Wells, Baker Brown, Tyler Smith, and Clay, with the results involving a mortality in selected cases of from 50 to 30 per cent. Dr. Tyler Smith, then President of the Obstetrical Society of London, whose papers will be found in the third volume of the Transactions of that society, is quoted as having had seven recoveries out of 12 cases and that "one of the most remarkable features in these cases was, that in two of them the pedicle was tied with a silk ligature, the pedicle and ligature being cut as short as possible and dropped into the abdomen without producing any bad results."

The address in 1884 was given by Dr. G. H. Kidd of Dublin at the meeting at Belfast. The subject was Puerperal Fever, treated chiefly from the clinical point of view. While rightly exposing the fallacy of the theory of scarlet fever as a cause of puerperal fever, he refused to admit the general septicæmic theory because it did not include groups of cases which he supposed due to a specific epidemic disease. The 22 years which have elapsed since that date have brought evidence which convinces all who study the matter under favourable conditions that the cases commonly grouped under before his attendance upon labours were limited to the management of normal pregnancy, labour, and the puerperium, together with such complications as are common. Instruction of this kind could well be given by the demonstrator and would clear the ground for the lecturer on obstetrics, leaving him free to devote more time to the graver complications and more advanced work. The student also at this later stage of his career would be in an infinitely better position to appreciate the value of this advanced teaching.

Another method of instruction, and one likely to be keenly appreciated by advanced students, is the delivery of clinical lectures upon cases recently in the wards. Hitherto, owing to the absence of lying-in wards, such lectures have seldom been delivered. Amongst the many able and learned obstetricians in London who have from time to time endeavoured to raise the standard of teaching there is probably no one to whom we owe so much as to the late Dr. Matthews Duncan. He came to London to fill the vacant post of obstetric physician at St. Bartholomew's Hospital in October, 1877, and from the first devoted a large portion of his time and his great experience, and gradually his affection also, to his wards and his students. A "Scotsman of the Scots," he came to London believing that there was little of value to be found South of the Tweed. He gradually transferred his devotion from Edinburgh and Aberdeen to London and St. Bartholomew's. He would go to Scotland for his holiday but came back to London for his work. His influence at the hospital may be summed up in the statement that by his teaching and example he transformed the teaching of obstetrics and gynæcology from an almost insignificant position to one of the greatest importance. This change was soon felt, not only by his colleagues on the staff of St. Bartholomew's but by the students and junior officers who flocked to his lectures and wards to learn from his example that the practice of midwifery and gynæcology could be as noble and as full of dignity as that of the highest standards of surgery and medicine. This transformation was due not only to his learning and greatness as a teacher and to his success as a leading consultant—both of which were sufficiently recognised far beyond the limits of St. Bartholomew's and even of London itself—but also to the greatness of character which made it impossible for anyone to be brought in contact with him, either in hospital or palace, without feeling that the branch of the profession which he practised was as noble and dignified as that practised by the greatest physicians and surgeons. In this respect, as in the high standard of his teaching, his example diffused itself in every direction, and it is no injustice to other great teachers of his time to say that it raised the whole standard of teaching obstetrics and gynæcology throughout London. It is difficult to say whether he excelled most in his systematic or clinical lectures. Students who regularly attended his systematic lectures received a course of instruction which by its completeness rarely left any matter of importance—however recent a contribution or emanating from whatever country—lacking in their knowledge of the subject. Illumined with the criticism of his clear, highly-trained, logical mind, they were enabled to discriminate what was of permanent value and what they might expect to lay aside with fuller knowledge. His clinical lectures were models of what such lectures should be. No student could help keeping his attention fixed on the subject. No mass of detail was allowed to obscure the clearness of the main object of the lecture, so that every one carried away some important principle clearly impressed on his mind, while to the more advanced student in gynæcology the facts grouped round the main thesis (the importance of which was not always perceptible to the elementary student) afforded him further instruction, the value of which rose in proportion to his knowledge of the subject and his experience as a practitioner. The influence of such a man who combined the highest personal qualities with knowledge, experience, and clear judgment, not only in the ward and classroom but in every relation of life, raised the standard of the science and practice of obstetrics and gynæcology to a position which, at least in London, they had never before attained.

THE SEWAGE OF TAVISTOCK.—At a special meeting of the Tavistock (Devon) urban council held on August 15th a tender was accepted for £4544 for carrying out a sewage disposal scheme for the town.

SOME OBSERVATIONS ON THE EFFECT OF STERILE CASEOUS MATTER IN THE TREATMENT OF TUBERCULOUS DISEASE.

BY PETER PATERSON, M.B., C.M. GLASG., M.R.C.S. ENG., L.R.C.P. LOND.,
SURGEON TO THE ROYAL INFIRMARY, GLASGOW.

I WISH to direct attention in this preliminary paper to a few observations which I have made on the effect produced in tuberculous lesions by the injection of some of the products of the tubercle bacillus as elaborated in the body.

It is well known that tubercle bacilli can easily be found in the walls of tuberculous abscesses but in the contents they may be so few that inoculation experiments may be necessary to demonstrate their presence. The conditions in the interior of such abscesses are apparently favourable to growth; the serum and soluble toxins pass into the circulation, producing more or less constitutional disturbance, whilst there is a stream of fresh serum, rich in nutritive substances, into the interior; the temperature is most suitable, and still not only do the bacilli not increase but actually diminish in numbers. There must, then, be some substance in the contents which is inimical to the bacilli and, as the fluids are being constantly renewed, presumably this deleterious material is in the encapsulated solids.

The conditions which exist in an abscess, as regards the relative proportion of caseous matter, cannot be produced in the body as a whole, still the possibility remained that the introduction of small quantities might exert a beneficial influence on the disease. But before such injections could be made it was necessary to destroy the living bacilli present, for though these may be so few as to escape notice with the microscope, inoculations show that even in these cases they are present. As it was requisite that the chemical constitution of the solids should be as little changed as possible it was evident that neither heat nor chemicals could be used for the purpose of sterilisation, and extreme cold, even though applied continuously for a long time, does not affect the virulence of organisms. Cold applied intermittently was found to produce the desired result. If tuberculous pus be kept in a refrigerator for five or six months, but allowing it to thaw frequently during that time, the pus will not induce tuberculosis when injected into guinea-pigs, even in large doses. Having destroyed the bacilli by this means the serum is poured off and the sediment is then washed for three days in a continuous stream of cold sterilised water to remove all soluble toxins. Sterile normal salt solution is now added to the fine white sediment till each cubic centimetre of the emulsion contains five milligrammes of solid substance and the material is then ready for use. Large numbers of animals have been injected with this suspension and in no instance has tuberculosis been produced. If a large quantity be injected into a tuberculous patient there is a well-marked reaction but a few minims can be given without any evident disturbance. If the opsonic index is to be regarded as the degree of resistance of the body against any particular organism then we have in this substance a means of raising the tuberculous index to a high level and that without any negative phase. In one of my patients this index rose from 0·5 to normal limits within 12 hours. Such a rapid rise is unusual but there is no difficulty in raising the index to what is regarded as normal and in maintaining it at that level. The technique necessary to obtain this index is so elaborate that it can only be conducted in a fully equipped laboratory and by a properly trained observer, and so long as it remains in this position it can only be employed in a limited number of cases. In using caseous matter I have found the temperature a convenient guide to the dose. If sufficient be introduced to raise the temperature from 0·5° to 1° the best results are obtained and at the same time the index keeps within normal limits. If there be no rise of temperature the index may still be high and yet little, if any, improvement be observed in the disease. I have found that from 0·1 to 0·5 cubic centimetre of emulsion given every second day is sufficient to raise both index and temperature. I begin with the smaller quantity and increase the amount at each injection till a slight reaction appears. The following teaching of obstetrics upon the same basis as the teaching of medicine and surgery. To devise such a scheme is not difficult, but to render it practicable within a reasonable time must be a matter of considerable expense and difficulty. It is in the first place essential that the clinical teaching be given in hospitals provided for the purpose, where a sufficient and continuous series of patients can be admitted, and having as at present a large extern department where the advanced students can attend patients at their own homes. Lying-in wards in a general hospital would be equally valuable if there were a sufficiently large number of beds to insure a regular series of patients in sufficient numbers. A small ward with a few beds is quite inadequate for routine teaching, although of great value for the admission of special cases. A large number of cases is less of a necessity than a continuous series, and I am convinced that it is of the greatest advantage to teachers and pupils that medical students should be taught their duties at the same time and place as monthly nurses and midwives. If taught separately the average student learns little of the many things every nurse knows well, and the nurse of a few months' training thinks she knows a great deal more than the medical man, and does not realise the wide gulf that separates her knowledge and practice from that of the properly trained medical men. Both student and nurse will in the wards have been taught together how to carry out their respective duties in the best manner with all the appliances and assistance which can be provided there, and in passing from the wards to the out-patient department they will learn how to carry out those principles in the simplest manner, and often enough with little to assist their wits and their fingers in dealing with the lesser emergencies which they will meet with.

Every clinical teacher of obstetrics should be a practitioner of obstetrics having charge of the obstetric wards and extern-maternity department, whose office as professor or lecturer would necessarily terminate with the cessation of his clinical duties. This arrangement would usually lead to the devolution of the greater part of the obstetric teaching to the younger members of the medical staff, with great advantage to them as well as to the students. They would have more time for visiting and clinical teaching in the labour and lying-in wards and to devote to the pathological work of their department which the older physician busy in practice may find it difficult to do.

Owing to the great difficulty that there is in providing the necessary funds for the maintenance and development of the existing hospitals, supported as they are by the voluntary contributions of a comparatively small proportion of the community, it seems hardly possible to expect that adequate accommodation can be provided in this manner in the near future, whether by the extension of the lying-in hospitals or provision of suitable wards in the general hospitals or by the foundation of new hospitals. All these are urgently needed and will require the expenditure of large sums of money. When we look at the splendid provision made for patients in the great public asylums and fever hospitals we shall be pardoned if we are inclined to look forward to a time when the great hospitals of the country shall be relieved from the eternal difficulty of finding the money necessary to pay for their daily maintenance and when we shall see them equipped in an equally suitable, though perhaps less expensive, manner by funds provided by the State, administered by the existing board of managers, under the general supervision of a responsible central hospital board or commission.

The practice of obstetrics consists of the practical application of the ordinary principles of surgery and medicine to special organs and to special conditions and yet, as stated in the report of the Midwifery Training Committee of the General Medical Council already alluded to, in 23 out of 37 medical schools students are allowed to attend midwifery practice before they have received even an elementary training in the principles of medicine and surgery. All obstetric physicians who have to teach know well that it is impossible to instruct such students with any enthusiasm, however willing the students may be to learn. The action of the General Medical Council in appointing this committee is a very important step in the right direction. The recommendations are in the main excellent and are now being considered by the various teaching bodies. They are—that every student be required to have conducted no less than 20 cases of labour, subject to the following conditions:—

A. Before the student is allowed to conduct the above-mentioned 20 cases of labour he should be required to have held the office of clinical medical clerk and of surgical dresser; to have attended a course of lectures in medicine, surgery, and midwifery; to have during one month given undivided attendance upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital; and to have therein attended cases of labour under the direct supervision of a medical officer of the hospital. He should further be required to produce a certificate from the authorities of the hospital showing that he is competent to undertake the conduct of ordinary cases.

B. No certificate that the student has conducted the above-mentioned 20 cases of labour should be accepted unless it is given by a member of the staff of a lying-in hospital or of the maternity charity of a general hospital.

These recommendations, when they can be rendered practicable and can be enforced, will meet some of the most important deficiencies suggested in this address. They will insure that the student has had a considerable part of his training in medicine and surgery and elementary obstetrics before the required 20 cases of labour are commenced; and that he will have had the same practical demonstrations and clinical instruction in the wards of the lying-in hospitals or in the lying-in wards of the general hospitals as he receives in his surgical and medical training.

The changes indicated in Paragraph B may be thought to inflict some hardship upon individual students, for at the present time the requisite certificate of attendance upon 20 cases of labour may be given by any registered practitioner. But it must be remembered that under the existing regulations the certificate affords no evidence that the student has received any instruction whatever and there is reason to believe that such indeed is sometimes the case.

While it is perfectly clear that there are many general practitioners able to give excellent instruction in some of the details of practical midwifery, it is equally certain that there are many others whose methods of practice, especially in the disregard of aseptic precautions, would make them dangerous teachers and would lead to the continuance of methods which tend to the perpetuation of the still high mortality from puerperal fever. The difficulty of making any selection in these circumstances would be very great and there is no satisfactory alternative but to adopt the course which is universally followed in the teaching of surgery and medicine—namely, to require that instruction be given by recognised teachers selected from the hospital staff for the purpose and that the instruction in practical midwifery necessary for qualification be given only by recognised teachers.

The regulation at present in existence which demands that the student shall attend courses of systematic lectures is also faulty, since it involves unnecessary labour to the lecturer and makes too great a call on the time and attendance of the student. This remark, indeed, applies to almost all systematic lectures as delivered at the present time, and many of us think that the time has come when the arrangements for such lectures need thorough revision. The great extent and variety of the subjects, on the one hand, and the excellence of so many of the text-books, on the other, make it desirable that the greater branches of medicine and surgery be taught in sections rather than in a continuous course of 60 or 80 lectures. In obstetrics the usual plan is to give a course of lectures extending over three months and delivered on four or five days in the week during the summer session; this course the student is expected to attend, but it is often quite impracticable to arrange a time for the lectures which shall permit anything like the whole number of the students to attend without interfering with their other duties, and unless (as is the case in the larger schools) a tutor is appointed to supplement these lectures by classes held at short intervals, a student may get little or none of the higher instruction which it is essential for him to receive. The lecturer on his part has year after year to spend a considerable portion of the time given to his lectures in teaching the anatomy and physiology of the female generative organs, both in the normal and gravid conditions, before he can begin teaching obstetrics proper—namely, the anatomy and physiology of labour, the management of pregnancy and labour, and the science and practice of the various complications that may arise.

It is a curious custom, but apparently a common one, for the lecturers on anatomy and physiology to omit from their systematic courses the female generative organs; hence the student learns but little of female pelvic anatomy and of such a highly-important subject as the physiology of menstruation until he attends lectures on obstetrics and gynæcology. Before attending his cases and acquiring some degree of practical acquaintance with the process of labour the student is not in a position to appreciate or even to understand much of what he hears in a course of systematic lectures. It would be better if the instruction he received

Metchnikoff and his colleagues have, so far as I am aware, published any further communications and one may assume that the results did not fulfil their expectations. The reader must be referred to the papers by Kraus and Prantschoff[8] upon cholera and other vibrios and their hæmotoxins, toxins, and antitoxins, as the details do not admit of a short analysis.

Whilst the various methods employed have led to the demonstration of toxic elements in fluid cholera cultures the filtrates obtained are less toxic than the unfiltered cultures and have not given satisfactory immunising results. The criterion of an active toxin is the production of a potent antitoxic serum. Judged by this standard the soluble toxins hitherto described have proved disappointing. This will be evident by reference to the immunising experiments of Metchnikoff and his co-workers. Two horses received subcutaneous injections of the filtered toxin prepared in the manner described, the initial dose being ten cubic centimetres. At the end of six months the horses were able to tolerate injections of 200 cubic centimetres. The injections were made at intervals of from 10 to 12 days and caused considerable local reaction. The serum mixed with the filtered toxin and injected into guinea-pigs subcutaneously gave the following results. After three months' treatment, and a total injection of 350 cubic centimetres of toxin, three cubic centimetres of the horse's serum neutralised one and a half lethal doses of the filtered toxin. After six months, and the injection of 950 cubic centimetres of toxin, one cubic centimetre of serum neutralised four lethal doses of toxin. The figures indicate that the immunising value of the toxin and the antitoxin was of a feeble character. The Behring-Ransom serum was likewise found to neutralise the same toxin. The serums prepared in goats by Pfeiffer by the injection of the bodies of the bacilli were of high bacteriolytic power but without demonstrable antitoxic action for the intracellular poison. The serum did not protect against the killed and toxic bodies of the bacilli. Whilst, therefore, it is recognised that a cholera serum should possess antitoxic qualities, Pfeiffer's serum did not exhibit these and Metchnikoff's, even after a prolonged period of immunisation, did not in its effects strikingly exceed the range of action of normal serum. Further, the feasibility of preparing an antitoxin for that primary poison which exists as an integral constituent of the cholera bacillus has remained a matter of dispute, and has been regarded as impracticable by many competent bacteriologists.

It was with the object of obtaining a definitive result, either in a positive or negative sense, that the following investigation was undertaken. As I have already briefly stated in a previous paper upon an antitoxic typhoid serum the experiments with the cholera endotoxin were successful.[9] The cold-grinding method adopted gave the necessary conditions for obtaining the cholera endotoxin directly from the living cell and studying its properties. Virulent cultures of the comma bacillus were employed for the purpose of the experiments. The organisms were cultivated on nutrient agar in Roux bottles. A watery emulsion of the eighteen hours' growth was made, which was then washed in a high-speed centrifuge. The separated organisms were triturated at the temperature of liquid air and the product was taken up in 1 in 1000 caustic potash. On spinning, a clear supernatant fluid representing a 10 per cent. extract of the comma bacilli was obtained and was treated very rapidly with chloroform vapour. The cell juices were in every instance sterile and were acutely toxic to experimental animals. The quantitative yield from the various grinds was remarkably constant and averaged about ten milligrammes of solid matter per cubic centimetre of the juices. This being the case it was possible to trace any parallelism that might exist between the virulence and the toxicity of the cultures—a matter of considerable theoretical and practical importance. It may be here stated that the cultures of high virulence yielded the most toxic and the cultures of low virulence the least toxic juices, whilst in those instances in which the virulence had been allowed to diminish to such an extent that, e.g., two platinum loops of a culture did not kill the guinea-pig, the toxicity of the juice suffered a corresponding drop, one-half cubic centimetre and even one cubic centimetre failing to kill, whilst one-tenth cubic centimetre from a virulent culture killed acutely. This leads me to conclude that as regards the cholera endotoxin virulence and toxicity are intimately related, inasmuch as increased virulence implies increased toxicity and *vice versâ*. This observation may explain the discrepant results obtained by different workers and in any case justifies the use I have constantly made of virulent cultures in my investigations upon this and other pathogenic organisms.

The variations in toxicity of the cholera cell juices I consider to have been largely dependent on variations in the toxic quality of the material at the time of grinding. The index for a good yield of endotoxin is the virulence of the given culture and this varies under laboratory conditions despite all precautions taken, and is liable to sudden drops. It is a source of trouble in connexion with experimental work on the cholera organism.

Toxicity of the cell juices.—From the most virulent cultures toxic extracts were obtained which on peritoneal injection killed guinea-pigs acutely in doses of $\frac{1}{10}$th and $\frac{1}{20}$th cubic centimetre, whilst $\frac{1}{30}$th cubic centimetre rendered the animals ill. The average lethal dose for guinea-pigs of 300 grammes weight was $\frac{1}{10}$th cubic centimetre (about one milligramme). The extracts from cultures of lower virulence killed in doses of 0·3 and 0·5 cubic centimetre. Where the virulence was feeble doses of 0·5 cubic centimetre and upwards were necessary to kill the animals. The endotoxin also acted subcutaneously. The effects were the same as on peritoneal injection—congestion of the intestine, hyperæmia of the organs, and hæmorrhages in the stomach. The doses killing subcutaneously were two cubic centimetres and one cubic centimetre. In the instances tested 0·5 and 0·2 cubic centimetre failed to kill. The results were not so constant as those obtained with the smaller peritoneal doses.

The endotoxin likewise killed rabbits acutely on intravenous injection. The symptoms were collapse, occurring about three-quarters of an hour after the injection, acute diarrhœa, and a rapid fall of temperature ending in death, at times within one hour. From the most virulent cultures $\frac{1}{10}$th and $\frac{1}{10}$th cubic centimetre of the cell juices killed acutely with the above symptoms. The average lethal dose ranged from 0·3 to 0·5 cubic centimetre. The filtered juices were also toxic—e.g., 0·2 and 0·5 cubic centimetre of a filtered juice proved acutely fatal. The rabbit was more tolerant to subcutaneous injections—e.g., one, two, and three cubic centimetres of the endotoxin did not kill but produced considerable local swelling and induration. The guinea-pig proved more uniformly susceptible and was therefore mainly employed in the subsequent serum tests.

The endotoxin was acutely fatal to goats on intravenous injection. A goat died within 12 hours after an injection of $\frac{1}{10}$th cubic centimetre (about one milligramme). A second goat developed persistent diarrhœa after a dose of $\frac{1}{100}$th cubic centimetre (about $\frac{1}{10}$th milligramme). In three other instances $\frac{1}{100}$th cubic centimetre rendered the animals ill, whilst $\frac{1}{50}$th and $\frac{1}{20}$th cubic centimetre produced acute diarrhœa and death. These examples indicate the potent nature of the cholera endotoxin when introduced into the blood stream of a susceptible animal, $\frac{1}{10}$th milligramme of the material inducing marked toxic effects.

In all the above experiments the freshly prepared endotoxin was injected. The juices deteriorate in toxic power on keeping and are readily modified by heat, as will be seen from the following experiment:—

Toxic Cholera Cell Juice.

Half hour at 55° C.	Half hour at 60° C.	Unheated.
Guinea-pig: 1·0 c.c. alive.	Guinea-pig: 1·0 c.c. alive.	Guinea-pig: 1·0 c.c. dead.
Guinea-pig: 0·5 c.c. alive.	Guinea-pig: 0·5 c.c. alive.	Guinea-pig: 0·5 c.c. dead.
Guinea-pig: 0·3 c.c. alive.	Guinea-pig: 0·3 c.c. alive.	Guinea-pig: 0·3 c.c. dead.

The toxicity of the cell juices in the above doses was destroyed after half an hour's heating to 55° and 60° C. The results were the same in the case of the typhoid endotoxin obtained under similar conditions. The soluble toxins obtained by Ransom and by Metchnikoff resisted heating to 100° C.

Immunising experiments.—These were carried out on the rabbit and the goat. Normal rabbit's and goat's serum had no appreciable neutralising effect on the toxins obtained is a short summary of several cases in which this treatment has been tried.

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[8] Kraus and Prantschoff: Centralblatt für Bakteriologie, Abtheil. I., Hefte 3 and 4, 1905.

[9] Macfadyen: Proceedings of the Royal Society, March 8th, 1906; Brit. Med. Jour., April 21st, 1906.

CASE 1.—The patient was a girl, aged eight years, with old-standing hip-joint disease. The joint was ankylosed and a sinus led from the outer side of the thigh up towards the joint. The skin round the opening of the sinus was extensively and deeply ulcerated. The sinus closed and the ulcers healed with four weeks' treatment.

CASE 2.—The patient, a boy, aged nine years, had tuberculous disease of the left clavicle, the left tarsus, and the right fibula. The left foot had been amputated and the fibula destroyed for about five inches before the treatment was commenced. When the injections were started there was a long open wound over the fibula and a sinus, discharging pus, over the clavicle. These were healed within five weeks after the injections were commenced.

CASE 3.—The patient was a girl, aged 14 years, with disease of the synovial membranes of the wrist-joint which was discharging through two sinuses. After seven weeks' treatment the swelling had disappeared and the sinuses closed. The movements, though improved, are still restricted.

CASE 4.—The patient, a woman, aged 22 years, had lupus of both cheeks of 12 years' duration. The patches were covered with small superficial ulcers and the edges consisted of a zone of firm papules. These were healed after two months' treatment, though their outline still becomes red when the patient is excited.

CASE 5.—The patient was a woman, aged 35 years, with chronic pulmonary tuberculosis. Both apices were diseased and with cavity formation. Cough was troublesome, expectoration was moderate in quantity, and bacilli were numerous. With three months' injections the symptoms have greatly improved. The râles have quite disappeared from the left apex and nearly so from the right. The cough is very slight and only for a little while in the mornings. There is almost no expectoration and the bacilli have been absent for two months.

These cases, though not by any means conclusive, are at least encouraging and justify further investigation.

Glasgow.

UPON AN ANTI-CHOLERA SERUM.

By ALLAN MACFADYEN, M.D. EDIN.,
FULLERIAN PROFESSOR OF PHYSIOLOGY, ROYAL INSTITUTION.

IT is generally accepted that the symptoms of cholera Asiatica are the result of an acute intoxication with certain products of the specific agent—the comma bacillus of Koch. Further, that these symptoms are due not to a general invasion of the body by the bacillus but to an absorption of its toxins from the seat of infection—the intestine. An intoxication being the cardinal feature in the disease the character of the specific poison became naturally a subject of close investigation, and more than one attempt has been made to isolate it and to bring the treatment of cholera within the range of serum therapeutics. Little hope of success has been found to lie in the preparation and the use of a bactericidal serum. The serum therapy of cholera, if it is to meet with any success, must rest on an antitoxic basis, bearing in mind the clinical features of the disease. This also has generally been recognised by those who have endeavoured to introduce specific methods of treatment.

Numerous efforts have been made to obtain toxins from cultures of the cholera organism. Two theories, apparently contradictory, arose with regard to the nature of the specific toxins and gave rise to much controversy. It has been maintained, notably by French observers, that the poison is a genuine secretory product, both *in vita* and *in vitro*, and extracellular in the sense of being diffusible and soluble. Others, and pre-eminently German observers, maintain that the poison is inherent to the cell plasma and therefore of the intracellular type. The point of view determined in each case the method of investigation employed. The upholders of an extracellular poison endeavoured to obtain a secreted toxin by the cultivation of the bacillus on fluid laboratory soils, whilst those who held the poison to be intracellular worked with the killed and undoubtedly toxic bodies of the bacilli. It may be useful to summarise the main results that were obtained inasmuch as a good deal of the work dates ten years back.

Among the earlier observers Petri[1] grew the comma bacillus on peptone soils and obtained a heat-resistant proteid termed by him "toxo-peptone." The entire cultures, sterilised by heat, proved to be more toxic than their filtrates. Hueppe and Scholl[2] cultivated the bacilli in fresh sterile eggs. The alcoholic precipitate from the egg yielded an aqueous extract poisonous to the guinea-pig. This effect was, however, shown to be due mainly to ordinary decomposition products and the retained alcohol. Gamaleia,[3] as the result of his investigations, came to the conclusion that there are several cholera toxins. The organisms grown on a special veal broth yielded two soluble poisons—the one, thermolabile, produced diarrhœa in the rabbit, and the other, thermostable, caused an intoxication but without diarrhœa. The doses required to bring about these effects were considerable. Behring and Ransom in 1895[4] described a soluble poison obtained by them from fluid cultures of the comma bacillus which was heat-resistant and acutely toxic to the guinea-pig in concentrated doses. For this poison they were able to prepare an antitoxin. It can hardly be supposed that these observers were dealing so much with the genuine poison as with secondary products which are to be met with in old cultures of the cholera and other organisms. Nor does their serum appear to have exhibited antitoxic properties much more striking than those of the normal serum. The important researches of Metchnikoff, Roux, and Salimbeni[5] call for detailed notice, both on account of the ingenious methods employed and the results obtained. Highly virulent cultures of the comma bacillus, prepared by cultivation in collodion sacs in the peritoneal cavity of the guinea-pig, were sown on a special medium containing 2 per cent. peptone, 2 per cent. gelatin, and 1 per cent. sodic chloride. A short period of incubation was given to the cultures in order to obtain the toxin before it had undergone modification. The cultures reached their maximum toxicity on the fourth day and were then filtered. The filtrate was toxic on subcutaneous injection in doses of 0·3 cubic centimetre per 100 grammes weight of guinea-pig. This toxin, similarly to Behring and Ransom's, was not sensibly modified at boiling point but lost its activity under the action of air and light. The guinea-pig was most susceptible to the toxin, other animals, such as the rabbit, requiring larger doses. The poison acted subcutaneously and peritoneally. The effects consisted in hypothermia, peritonitis, fluid distension of the small intestine, along with hyperæmia of the abdominal organs. These results appear simple and conclusive in favour of the toxin obtained being a genuine secretion product of the bacilli. They are, however, open to another interpretation—viz., that these observers were really dealing with toxic elements of the comma bacillus which had been released by autolysis and disintegration of the cells. The death-rate of organisms, even in a young cholera culture, is rapid. Gottschlich and Weigang[6] found that in a two-days' culture of cholera at 37° C. only about 10 per cent. of the bacilli were alive and on the third day at most 1 per cent. It still remains to me doubtful if such poisons are of the same character as those developed in the body in the course of a cholera infection.

Pfeiffer is the most distinguished upholder of the doctrine that the cholera poison is contained in the protoplasm of the cell. Young broth cultures have no marked toxic effect on filtration. On the other hand, carefully killed young agar cultures produce an acute intoxication of the same nature as that produced by living cultures. This has been demonstrated by Pfeiffer, in a most careful series of experiments.[7] There can be little doubt that the primary cholera toxin is of the endocellular type, of an unstable character, and is easily converted into less toxic modifications. Its demonstration, therefore, requires a careful and conservative technique. Subsequent research has *not* substantially modified the respective standpoints indicated except in so far as Pfeiffer's conclusions have met with the widest acceptance. Since 1896 neither Behring and Ransom nor

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[1] Petri: Arbeiten aus dem Kaiserlichen Gesundheitsamte, Band vi., 1890.

[2] Hueppe: Deutsche Medicinische Wochenschrift, p. 417, 1891.

[3] Gamaleia: Archives de Médecine Expérimentale, p. 172, 1892.

[4] Behring: Deutsche Medicinische Wochenschrift, p. 294, 1893; Ransom: ibid., p. 457, 1895.

[5] Metchnikoff, Roux, and Salimbeni: Annales de l'Institut Pasteur, vol. x., p. 257, 1896.

[6] Gottschlich and Weigang: Zeitschrift für Hygiene, p. 376, vol. xx., 1895.

[7] Pfeiffer, ibid., vol. xi., 1892, p. 393; vol. xv., 1894, p. 268; and vol. xx., 1895, p. 217.

HÆMATOGENOUS ALBUMINURIA.*

BY R. HINGSTON FOX, M.D. BRUX., M.R.C.P. LOND.,
PHYSICIAN TO THE FRIENDS' PROVIDENT INSTITUTION.

History.—Nearly 50 years passed after the connexion between albuminous urine, dropsy, and kidney disease was established by Dr. Bright in 1827, before the fact was recognised that albuminuria was found in a class of persons who were not the subjects of kidney disorder, at any rate in its usual forms. It was long before the chemical examination of the urine was made a matter of routine practice even in hospitals. This became more common during the third quarter of the nineteenth century but it was not until the ninth decade that it was considered a needful part of the examination of candidates by most insurance offices. Such keen clinicians as Gull[1] and Andrew Clark[2] in this country, Vogel[3] in Germany, and Jaccoud[4] in France, did not fail to observe these anomalous cases of albuminuria at an earlier date, but so far as appears the first clear account of them was given in Moxon's paper[5] in Guy's Hospital Reports for 1878. Dukes's observations[6] at Rugby quickly followed and many of us can remember how keenly the matter was discussed by Saundby,[7] Maguire,[8] Barnes,[9] and others during succeeding years. Pavy[10] defined the cyclic type in 1885, and the more favourable view of such cases which was finding acceptance was strongly contested by George Johnson.[11] Meanwhile Fürbringer[12] and Leube[13] in Germany, Capitan[12] in France, and Stirling[14] and Grainger Stewart[15] in this country, making observations on soldiers, cadets, children, and others, showed that a large percentage of persons accounted healthy by every other test passed albuminous urine at some time in the day. Munn[16] made similar observations on American candidates for life assurance.

It has thus come to be established that there is a form of albuminuria of common occurrence the subjects of which are generally young men or boys, although there is no reason to think that the female sex is exempt; often they are pale, wanting in vigour, and dyspeptic, and are liable to faints or headaches; they have usually excitable hearts and the arterial tension varies much under slight influences. The urine is not of continuously low specific gravity; the albumin, which consists mainly of serum albumin, is often present only at intervals, following the rise from bed and entry on the work of the day, or succeeding a meal, or coming on after muscular exertion, cold bathing, or emotional strain. In other cases its presence is continuous but the amount varies. The urinary sediment contains no tube casts or renal cells, excepting that sometimes a very few small hyaline casts may be found; crystals of oxalate of lime are often present; still more frequently there is an excess of uric acid. The albumin is also found in healthy persons—that is, in those who act in all ways as such.

Nomenclature.—This form of albuminuria has been termed "transient" (Capitan,[12] 1883; Legendre[19]; Rohlfing[12]; Flensburg[18]; cf. Petit,[21] 1875); "intermittent" (Moxon,[5] 1878; Rooke[17]; Falkenheim,[12] 1884; Bertrand[12]; Broadbent[18]; Guyon[19]; Rabagliati[22]); "of adolescents" (Moxon,[5] 1878; Dukes,[6] 1878); "physiological" (Marcacci,[21] 1878; W. Roberts,[20] 1884; Leube,[13] 1887; Weinbaum[19]; Sollmann,[19] &c.); "of the (apparently) healthy" (Fürbringer,[12] 1879; Griswold[13]; van Noorden[19]; Stirling[14]; Washburn[12]); "latent" (G. Johnson,[11] 1879; cf. Gueneau de Mussy,[21] 1674; and Rey,[21] 1876); "dietetic" or "alimentary" (Stanley Rendall,[12] 1883; Grainger Stewart[15]); "cyclic" (Pavy,[10] 1885; Merley[12]; Canfield[12]; Klemperer[12]; Ostwald[19]; Heim[19]); "functional" (Ralfe,[21] 1886; Gairdner[24]; Brandreth Symonds[19]; Armstrong[25]); "paroxysmal" and "simple persistent" (Grainger Stewart,[15] 1883); "neurotic" or "emotional" (Pessez,[12] 1888; Rem Picci[12]); "postural" or "orthostatic" (Marie[23]; Teissier,[27] 1899; Stokvis[19]); "early" (Dukes,[6] 1891); "benign" (Renard,[21] 1889); and "spurious" (Pizzini,[12] 1897). The number and variety of these designations are in accord with our ignorance hitherto of the pathology of the disorder. Many of the terms describe prominent features of some of the cases, others like "functional" are little more than a cloak for want of knowledge.

Causes.—Much stress has naturally been laid on the influence of blood pressure, altered by exercise, posture, or emotion, as a cause of the condition; yet it must be granted that the same cause produces in other persons no such effect. Moreover, the signs of an unstable neuro-vascular mechanism (Pavy[10]) are quite absent in some instances. As early as the days of Prout it was suspected that a change in the albumins of the blood apart from kidney disorder might be the cause of some forms of albuminuria. This was the opinion of Jaccoud[4] and it formed the subject of a thesis by Rendall,[12] and many inconclusive experiments were made to establish the theory. Semmola[28] worked in the same field and Bamberger[29] of Vienna in 1881 described "hæmatogenic albuminuria." These views were, however, speculative and Stokvis[19] declared in 1901 that proof of their truth as an explanation of benign albuminuria was wholly wanting. Teissier[27] thought that the kidneys might be ill developed so as to be permeable to the albumin of the blood.

Sir A. E. Wright's researches.—Sir A. E. Wright's hæmatological studies[30] have produced strong grounds for the belief that this kind of albuminuria is due to a disorder of the blood, the outstanding feature of which is lessened coagulability (diminished viscidity). The evidence for this has been already detailed in THE LANCET and may be summarised as follows. 1. In four subjects of this form of albuminuria the coagulation time of the blood averaged one minute 50 seconds. It is well known that salts of calcium increase the coagulability by promoting the formation of fibrin. By the administration of calcium lactate to these four subjects the time was reduced to an average of one minute 20 seconds. The albumin had then disappeared from their urine. 2. In four cases of albuminuria with signs of disease of the kidneys or urinary passages the average coagulation time was one minute 30 seconds and it was reduced by the administration of calcium lactate to an average of 50 seconds. The albumin was unchanged or somewhat increased in amount. 3. The functional efficacy of the kidneys was demonstrated to be unimpaired in seven of the first class of cases by the determination of the "excretory quotient," which is a measure of the power of the kidney to elaborate out of the blood a concentrated saline solution. In the four cases of the other class it was found to be lowered greatly. 4. The subjects of the form of albuminuria in question have usually been undergoing rapid bodily growth, in which there is a demand for calcium, especially for bone formation, so that a deficiency of this substance in the system is likely to occur. 5. Experience has shown that a milk diet which is rich in calcium cures the albuminuria in many cases. 6. Wright ranges this symptom with a class of other "serous hæmorrhages" dependent on transudation of serum and associated with lessened coagulability of the blood; amongst these are urticaria, chilblains, and forms of headache, œdema, and weeping eczema. It is not the rule for these disorders to occur in the same subject, so that it seems that one person is vulnerable in his skin, another in his meninges, another in his kidneys; and thus far a kidney weakness may be postulated in those who have hæmatogenous albuminuria.

Further observations.—The control of the albumin by the use of calcium lactate is the chief clinical test. It has been confirmed by other observers, although no results have yet been published so far as I know. I have used the test in 16 cases of albuminuria indiscriminately. In seven the albumin disappeared or was reduced to a small trace after the taking of the lactate. These were, I believe, all instances of hæmatogenous albuminuria. In the remaining nine the albumin persisted; in most of these cases signs of kidney disease were present, but in two or three the albumin may have been hæmatogenous, needing a longer course of the calcium salt for its removal. I give brief notes of the cases.

CASES 1, 2, and 3.—In two boys, aged 11 and 16 years respectively, and one girl, aged 13 years, a pretty dense cloud of albumin was found on boiling the forenoon urine, and there was also marked excess of uric acid as shown by Simon's test.[31] The forenoon urine some days later, after two or three doses of the lactate, was free from albumin and the uric acid was also much diminished. One of the boys had a most unstable nervous system and was liable to epileptic attacks; his albumin varied from 1 per cent. (Esbach) to *nil* under changed conditions of diet and exercise.[15] I have watched this case during several months and am fully satisfied of the control of the albumin by the directly from the cholera organism—one cubic centimetre of normal serum did not neutralise two lethal doses of the endotoxin. The rabbits received subcutaneous injections of the toxic cell juices and proved tolerant to considerable doses. One rabbit received at intervals of a week 1, 2, 3, and 5 cubic centimetres of the toxin subcutaneously. The serum was tested seven days after the last injection. The serum-toxin mixture was kept at 37° C. for half an hour before injection into the guinea-pig. The results are given in the following table:—

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* The superior figures occurring throughout the article are references to the bibliography at the end.

Guinea-pig.	Dose.	Result.
1	2 c.c. toxin + 2 c.c. serum	Alive
2	2 c.c. " + 1 c.c. "	"
3	2 c.c. " + ½ c.c. "	"
4	1 c.c. " + 2 c.c. "	"
5	1 c.c. " + 1 c.c. "	"
6	1 c.c. " + ½ c.c. "	"
7	1 c.c. " + 2 c.c. *normal* serum	Dead
8	0·2 toxin	"

One cubic centimetre of the toxic cell juice contained five ascertained lethal doses. The treated rabbit's serum had therefore acquired distinct anti-endotoxic properties, inasmuch as 0·5 cubic centimetre neutralised ten lethal doses of the endotoxin, whilst one cubic centimetre of normal serum did not neutralise two lethal doses. Other treated rabbits gave similar results after a short period of immunisation—e.g., in two instances tested, $\frac{1}{10}$th cubic centimetre of the serum protected against three and $\frac{1}{50}$th cubic centimetre against two ascertained lethal doses of the endotoxin. The injection of the fresh toxin in a condition favouring absorption no doubt favoured the result. By means of these experiments one was able to demonstrate at the outset the production of an antibody for the cholera endotoxin. It was also evident that one was dealing with an active toxin.

The further immunising experiments were carried out on the goat and the intravenous method of injection was employed. This animal is highly susceptible to the action of the cholera endotoxin, as will be seen from the figures already given, and a careful method of dosage is necessary for successful immunisation. A goat received intravenously at intervals of a week $\frac{1}{100}$th, $\frac{1}{50}$th, $\frac{1}{10}$th, $\frac{1}{8}$th, $\frac{1}{20}$th, and $\frac{1}{5}$th cubic centimetre of toxic cell juices. The animal was ill after the first injection and the subsequent doses produced distinct reactions. The serum was tested after the sixth injection. The results are given in the accompanying table:—

Guinea-pig.	Dose.	Result.
1	2 c.c. toxin + 2 c.c. serum.	Alive.
2	2 c.c. " + 1 c.c. "	Dead.
3	2 c.c. " + ½ c.c. "	Alive.
4	1 c.c. " + 2 c.c. "	"
5	1 c.c. " + 1 c.c. "	"
6	1 c.c. " + ½ c.c. "	"

The cell juice contained four ascertained lethal doses in one cubic centimetre. The figures therefore show that one-half cubic centimetre of the serum protected against eight lethal doses of the endotoxin. It had been previously ascertained that one cubic centimetre normal goat's serum will not protect against two lethal doses of the poison, nor, as a matter of fact, was there any appreciable action in two cubic centimetres of normal serum.

A second goat was treated more deliberately and for a longer period, beginning with sublethal initial doses of the endotoxin, and tolerance was established to otherwise fatal amounts. The weekly injections made were $\frac{1}{100}$th, $\frac{1}{100}$th, $\frac{1}{50}$th, $\frac{1}{50}$th, $\frac{1}{30}$th, $\frac{1}{20}$th, $\frac{1}{30}$th, $\frac{1}{20}$th, $\frac{1}{30}$th, $\frac{1}{20}$th, $\frac{1}{15}$th, $\frac{1}{15}$th, $\frac{1}{15}$th, $\frac{1}{15}$th, $\frac{1}{12}$th, and $\frac{1}{3}$rd cubic centimetre. The animal was ill after the first injections of $\frac{1}{100}$th, $\frac{1}{50}$th, $\frac{1}{20}$th, and $\frac{1}{15}$th cubic centimetre. The total amount injected was about one cubic centimetre, or 10 milligrammes, of solid matter. The injections extended over four months, the animal at the end of that time being alive and well. In the case of this goat the neutralising power of its serum was always tested against the same amount of toxic cell juice—viz., one cubic centimetre, and containing from three to five ascertained lethal doses. The serum-toxin mixture was kept at 37° C. for half an hour before injection into the guinea-pig. The following table represents the results obtained.

Serum Tests.

Goat.	Blood sample.	Ascertained lethal doses of toxin.	Amount of serum.	Guinea-pig. Result.
After	6 injections.	3	$\frac{1}{10}$ c.c.	Alive.
"	" "	3	$\frac{1}{20}$ c.c.	"
"	" "	3	$\frac{1}{30}$ c.c.	"
"	13 "	5	$\frac{1}{10}$ c.c.	"
"	" "	5	$\frac{1}{20}$ c.c.	"
"	14 "	3	$\frac{1}{20}$ c.c.	"
"	" "	3	$\frac{1}{30}$ c.c.	"
"	" "	3	$\frac{1}{40}$ c.c.	"
"	" "	3	$\frac{1}{50}$ c.c.	"
"	" "	3	$\frac{1}{100}$ c.c.	"
"	" "	3	$\frac{1}{100}$ c.c.	"
"	15 "	3	$\frac{1}{200}$ c.c.	"
"	" "	3	$\frac{1}{200}$ c.c.	"
"	" "	3	$\frac{1}{400}$ c.c.	"
"	" "	3	$\frac{1}{300}$ c.c.	"
"	" "	3	$\frac{1}{300}$ c.c.	"
"	" "	3	$\frac{1}{300}$ c.c.	"

The figures demonstrate that marked anti-endotoxic properties had developed in the serum of the goat and had increased to the degree that $\frac{1}{300}$th cubic centimetre of the serum neutralised three ascertained lethal doses of the endotoxin, a property not possessed by one cubic centimetre of normal serum. A few tests were made with the goat's serum on the rabbit and showed that the serum likewise acted on intravenous injection. For example, $\frac{1}{50}$th cubic centimetre of the serum protected a rabbit against the intravenous injection of from three to four lethal doses of the endotoxin, and in other tests similar results were obtained.

The experiments having served their purpose have not in the meanwhile been carried further, although I have little doubt that still higher serum titrates could have been obtained. They demonstrate not only the feasibility of producing an antibody for the cholera endotoxin by the method adopted, but also the practicability of raising to a marked degree the anti-endotoxic value of the serum. It remains to add that the goat's serum likewise possessed agglutinative and bacteriolytic properties—e.g., $\frac{1}{1000}$th cubic centimetre of the serum agglutinated the cholera bacilli and $\frac{1}{1000}$th cubic centimetre gave Pfeiffer's reaction. The experiments in this direction were not carried further than was necessary to demonstrate the existence of these bodies.

CONCLUSIONS.

The experiments show:—1. That acutely toxic cell juices possessing active immunising properties can be obtained from the cholera organism by the method employed. 2. That an antibody can be produced for that primary poison which exists as an integral constituent of the cholera bacillus—a matter upon which there have been considerable dispute and difference of opinion. 3. That the anti-endotoxic power of the serum can be raised to a marked degree—a matter of equal importance. 4. That the serum in addition to its anti-endotoxic possessed agglutinative and bacteriolytic properties. 5. That in the case of the cholera organism there exists an intimate relationship between its virulence and toxicity. 6. That the cholera endotoxin obtained under the conditions described is thermolabile, being readily destroyed at 55° and 60° C.

King's College, London.

DIPHTHERIA IN TIVERTON RURAL DISTRICT.—At a meeting of the Tiverton (Devon) rural district council held on August 14th it was decided, on the recommendation of the Bradninch parochial committee, to request the Local Government Board to hold an inquiry into the causes of the outbreak of diphtheria which had existed for more than a year at Bradninch.

passé pour être en parfaite santé." C'est "une curiosité pathologique, encore inexpliquée." Elsewhere he speaks of "Albuminurie par altération du sang," without lesion of the kidneys. See also British and Foreign Medico-Chirurgical Review, April, 1858, p. 323.

[5] Moxon: Guy's Hospital Reports, third series, xxiii., 1878, p. 233. Refer also to Clement Lucas, Transactions of the Hunterian Society, 1891-92, p. 104, for the supposed connexion with masturbation.

[6] Dukes: Brit. Med. Jour., 1878, vol. ii., p. 794; 1881, vol. ii., p. 776; 1906, vol. ii., p. 243; THE LANCET, Dec. 12th, 1891, p. 1327.

[7] Saundby: Brit. Med. Jour., 1879, vol. i., p. 699; 1890, vol. i., p. 841.

[8] Maguire: THE LANCET, June 5th, 1886, p. 1052.

[9] R. Barnes: THE LANCET, May 12th, 1883, pp. 914, &c.; and March 18th, 1893, p. 615.

[10] Pavy: THE LANCET, Oct. 17th, 1885, p. 705, Brit. Med. Jour., 1888, vol. ii., p. 417; Transactions of the Hunterian Society, 1891-92, p. 101; Transactions of the Medical Society of London, vol. xxvii., p. 95.

[11] Sir G. Johnson: Brit. Med. Jour., 1879, vol. ii., p. 923; 1889, vol. i., p. 225; &c.

[12] References to these authors will be found under Albuminuria (Intermittent) in the Index Catalogue of the Library of the Surgeon-General of United States second series, vol. i., pp. 212, ff.

[13] Leube: Virchow's Archiv, Band lxxii., quoted in THE LANCET, April 6th, 1878, p. 503.

[14] Stirling: THE LANCET, Dec. 10th, 1887, p. 1157.

[15] Grainger Stewart: On Albuminuria, 1888; also Brit. Med. Jour., 1887, vol. i., p. 1224; 1888, vol. ii., p. 81. He describes the case of a girl, aged 13 years, whose albuminuria varied extremely with posture, &c., as in Case 1 recorded in the text.

[16] Munn, quoted by Fagge, Medicine, third edition, vol. ii., p. 452.

[17] Rooke. Brit. Med. Jour., 1878, vol. ii., p. 535.

[18] Broadbent. Intermittent Albuminuria, in "The Pulse," 1890, p. 255.

[19] Stokvis, a valuable article, Albuminurie, in the Rapports du Deuxième Congrès des Médecins Experts des Compagnies d'Assurance, Amsterdam, 1901, and references quoted by him.

[20] Rabagliati, Brit. Med. Jour., 1902, vol. ii., p. 422; also a paper read before the Yorkshire Institute of Actuaries, 1906.

[21] See Index-Catalogue of the Library of the Surgeon-General of the United States, vol. i., Albuminuria.

[22] Sir W. Roberts, 1884. See Index Catalogue, supra; also Transactions of the Hunterian Society, 1891-92, p. 103.

[23] Ralfe Brit. Med. Jour., 1886, vol. ii., p. 1012, THE LANCET, Oct. 23rd, 1886, p. 784, and Nov. 17th and 24th, 1888, pp. 953 and 1008 respectively. He states that Prout used the term "functional."

[24] Sir W. Gairdner, Brit. Med. Jour., 1889, vol. ii., p. 422.

[25] Armstrong: Transactions of the Medical Society of London, vol. xxvii., p. 93; Brit. Med. Jour., 1904, vol. ii., p. 925.

[26] Marie, quoted by Armstrong, supra.

[27] Teissier, Les Albuminuries Curables, 1900, quoted by Stokvis. Also at French Congress of Internal Medicine, quoted by De H. Hall, Transactions of the Medical Society of London, vol. xxvii., p. 80. Also Brit. Med. Jour., 1905, vol. ii., Epitome, p. 65.

[28] Semmola, Paris, 1887; see Index Catalogue of the Surgeon-General of the United States, vol. i.; THE LANCET, Oct. 18th, 1879, p. 583; Brit. Med. Jour., 1895, vol. i., Epitome, p. 32.

[29] Bamberger, quoted in THE LANCET, March 19th, 1881, p. 452.

[30] Sir A. E. Wright's researches on the coagulability of the blood and its influence in various disorders are described in a series of papers in THE LANCET in 1896, 1897, 1904, and especially (in conjunction with Dr. G. W. Ross) in the issue of Oct. 21st, 1905, p. 1164. Also in the Transactions of the Pathological Society of London, 1902, p. 293, and in the Transactions of the Royal Medical and Chirurgical Society, 1903, p. 1.

[31] Simon Manual of Clinical Diagnosis, fifth edition, p. 433.

[32] Tirard, in Albuminuria and Bright's Disease, 1899, uses the term "hæmatogenous albuminuria" in a more restricted sense.

[33] P. Hawkins: Transactions of the Clinical Society of London, vol. xxvi., p. 216; Transactions of the Life Assurance Medical Officers' Association, 1895, p. 24; 1898-99, pp. 142, 155.

[34] Hingston Fox. Transactions of the Life Assurance Medical Officers' Association, 1906, p. 61, Transactions of the Hunterian Society, 1891-92, p. 94.

[35] S. West Transactions of the Medical Society of London, vol. xxvii., p. 83.

[36] Pribram: quoted by Armstrong, supra.

[37] Nies: THE LANCET, August 18th, 1906, p. 436.

Weymouth-street, W.

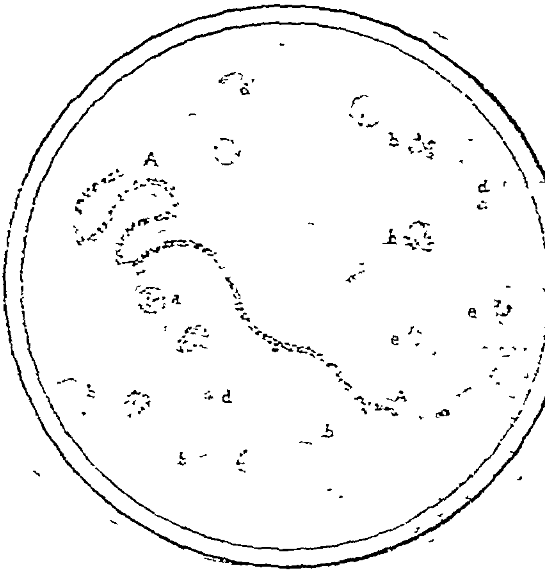
TWO CASES OF MULTIPLE INFECTION.

BY G. C. CHATTERJEE, M.B.,
ASSISTANT BACTERIOLOGIST, MEDICAL COLLEGE, CALCUTTA.

THE following is an account of two cases of multiple infection which came under my observation.

CASE 1.—The patient, a man, aged 40 years, was admitted into the Medical College Hospital, Calcutta, on Nov. 20th, 1903, for fever and jaundice. He gave a history that he had been suffering from the disease for a week. The fever was continuous and was ushered in with ague, but these symptoms ceased after admission. At the time of admission he was found to be markedly jaundiced. His intellect was dull. The pulse was slow (60 per minute). The spleen was just below the costal arch. The temperature was 102° F. on admission; it rose to 104° in the afternoon. There was no ague. Quinine was given hypodermically in the afternoon. On the next day the morning temperature was 101°. It rose to 102° in the afternoon and under repeated quinine injections the fever fluctuated between 100° and 102° for a week and then left.

Examination of the blood of the patient showed a remarkable appearance. In every field numerous malaria parasites of all shapes and sizes were found. The following is a description of these parasites. 1. Numerous crescents; from ten to 12 were present in each field. Some were still immature and intracorpuscular, others were fully developed, and some were of a spheroidal shape. 2. A great number of rings were found; they were mostly small rings with a single chromatic body. The ring was linear, the corpuscle showing a few coarse stipplings. There was no change in the corpuscles. A few free rings were also seen. 3. Half-developed parasites. There were a good many of these found. Most of them showed a big chromatic body surrounded by a body protoplasm dotted with rod-shaped pigments. The corpuscles were enlarged and showed Schüffner's dots. There were found also a few parasites in which the pigment particles were coarse. The corpuscles in which they were situated showed no change; no stippling, &c. The suspicion that they were quartan parasites was settled by the finding of a few typical quartan rosettes. 4. Fully developed parasites with rosettes. Fully developed benign tertian parasites with Schüffner's dots were the most common and prominent. A few benign tertian rosettes with from 16 to 18 divisions were also seen. Besides, as noted before, a few quartan band forming parasites and typical quartan rosettes were found. 5. While examining one of the slides stained with Leishman's stain for the above malaria parasites there was found in one field a beautifully stained filaria embryo. The sheath is distinctly seen in the figure (A).



From a preparation made from the blood of Case 1 on the first day in the daytime, stained with Leishman's stain. A, Filaria is seen with its sheath. a, Benign tertian, a fully developed one. b, Benign tertian rosette. d, Crescents. e, Quartan, early stage.

Examination of the blood at night showed a few living filaria embryoes in a hanging-drop specimen.

Blood examined on the next day (after the quinine injection) showed numerous crescents as before, very few rings, and a few half-developed benign tertian and quartan parasites; no rosettes were seen. On the third day examination showed a good many crescents, a few rings, and no benign tertian parasites. On the fourth day crescents were found in diminished numbers. No other parasites were found. On the eighth day a few crescents were found after a long examination.

CASE 2.—The patient, a Hindoo male, aged 20 years, had been suffering from fever for a month when he came under my notice on Nov. 28th, 1903. His temperature was at that time 103° F. He was markedly anæmic; no enlargement of the spleen was perceptible. Examination of the blood showed numerous malaria parasites. These on careful examination of a stained slide (Leishman stain) were found to belong to all the three varieties of malaria parasites, benign tertian, quartan, and malignant tertian. Numerous rings were found. A good number of crescents were seen mixed with bright-coloured benign tertian parasites. A few quartan and benign tertian rosettes were seen. As I lost sight of the case no further examination of the blood of the patient was made.

The above cases are noteworthy on several grounds. Cases of true double infection by animal parasites are no doubt lactate which, however, has to be continued in bi-weekly doses to prevent recurrence.

CASES 4 and 5.—The patients were two men aged 25 and 39 years respectively, in whom a thin cloud of albumin disappeared after 30 grains of the lactate. In the latter case the effect was transient and the remedy had to be repeated.

CASE 6.—A neuralgic ailing woman, 32 years of age, passed albumin in her urine, a marked cloud on boiling. After three doses of the lactate it was reduced to a trace.

CASE 7.—A thin cloud in a hypochondriacal woman, aged 50 years, entirely passed away under the remedy.

CASES 8 and 9.—The patients were two men, aged about 42 and 50 years respectively, of full habit of body, and rather florid. They were known to have passed albumin for two and three years respectively; there were no renal elements in the centrifugalised sediment. The elder of the two took alcohol freely. The albumin was unchanged after two doses of the lactate, which was not further pursued.

CASE 10.—The patient, a man aged 35 years, had albuminuria (about 0·2 Esbach) for eight years following acute nephritis. The deposit showed a few small casts and blood discs and many fragments of uric acid crystals. Two doses of calcium lactate only diminished the quantity of albumin.

CASE 11.—A man, aged 49 years, had passed copious albumin for at least 18 years. Tube casts were numerous; the general health apparently was excellent, and the patient was stout and florid. Arterial tension was high but there was no other vascular change. After several doses of lactate the albumin was apparently increased in quantity. This is an instance of the rare condition of "albuminuria of long standing with apparent health."

CASE 12.—A man, aged 54 years, had had albuminuria for at least three years; many casts were present and the arteries were thickened. The albumin was unchanged after the lactate treatment.

CASE 13.—The patient was a woman, aged 55 years, who had had albuminuria on and off for eight years with cardio-vascular changes; the urinary sediment showed one or two casts and some renal cells. After two doses of the lactate the albumin was reduced from a thin cloud to a trace.

CASE 14.—The patient was a man, aged 58 years, who was very obese. Arterial tension was high. The albumin, which presented a dense cloud on boiling, was persistent after taking the lactate.

CASE 15.—The patient was a man, aged 69 years. He appeared worn and had thickened arteries. A dense cloud of albumin was present, with renal cells. There was no change after taking the lactate. This patient died five months later from cerebral hæmorrhage.

CASE 16.—The patient, a man, aged 75 years, in fair general health, but with a cordy pulse of high tension, was known to have had albuminuria for three years. Two or three casts were found in the sediment. There was no change after two doses of the lactate. This was a case of slow senile albuminuria.

The calcium-lactate test was applied as follows. Two doses were given, in some cases more; about 15 grains in each dose, varied according to age and body weight; the patient took one at bedtime and the second two nights later and supplied a sample of the urine passed about noon on the day succeeding the second dose. The evidence given fairly proves the existence of what I have termed "hæmatogenous albuminuria";[32] that is to say, that in many cases of albuminuria the primary cause is the state of the blood. It is probable that these cases include the bulk of those hitherto described as "adolescent," "cyclic," &c. The disturbance of the neuro-vascular mechanism so often found seems to be only a contributing cause. Further observations are needed to define the limits of the condition.

Diagnosis.—In most of the cases of hæmatogenous albuminuria the conditions already noted as to age, nervous temperament, and excitable circulation are present. Headaches or faints are common. But the three chief signs are: (1) the albumin is absent or at least lessened in the night urine; (2) it disappears after taking calcium lactate; and (3) the urinary sediment (centrifugalised or deposited after 24 hours' standing) contains no casts or renal cells, but often crystals of uric acid or oxalates. Hæmatogenous albuminuria must be distinguished from the rare condition of "albuminuria of long-standing without apparent disturbance of health" described by Dr. F. Hawkins,[33] by myself,[34] and by others, and of which Case 11 is an instance. Here the albumin is nephrogenous and possibly comes from a limited lesion of one kidney (Ziemssen); epithelial casts are shed freely, the albumin is persistent at all hours, and in Case 11 was quite uncontrolled by the calcium salt. The full diagnosis of hæmatogenous albuminuria cannot be made without a microscopic examination and the use of the calcium-lactate test, but its recognition at a first interview is often possible.

Prognosis.—Many years' experience is needful to decide with certainty whether these cases eventually become the subject of progressive kidney disease. S. West,[35] writing of "albuminuria in the apparently healthy," thinks it probable that many do so. Dukes,[6] who was inclined to the same view, has abandoned it, finding that many of his former juvenile patients are now robust men. The experience of Pavy[19] and Broadbent[18] has also been favourable. Teissier's record[27] of 28 cases under observation for ten years showed no deaths and only four ephemeral recurrences of the albumin. The opinions of some German observers are emphatic. Pribram[5] states that the cases always recover even after lasting several years and that albuminuria of puberty never develops into nephritis. I have recorded in a paper read recently before the Life Assurance Medical Officers' Association the sequels of 111 consecutive cases of albuminuria found in life examinations for certain insurance offices and institutions between 1884 and 1896; 19 were more or less of the cyclic type. The result of inquiries made in the present year after the lapse of a period varying from ten to 22 years is as follows. Of the 19 cyclic cases one patient has died from tuberculosis of lungs and larynx and one from accident, and the remaining 17 are living, most of them apparently in good health. The sequel of the 92 other cases of albuminuria (including 63 of traces only) is also not unfavourable; six patients are known to have died and eight have been lost sight of; 78 are living, mostly in good health. Mr. E. R. Bickersteth of Liverpool kindly allows me to state his experience. More than 20 years ago he examined a large number of youths, aged from 15 to 16 years, for entry as junior clerks into insurance offices and banks and found albumin in the urine of more than one-quarter of the number. He dieted them, allowing no butcher's meat, and the albumin totally ceased in almost all cases. He had the opportunity of watching several of these youths for many years afterwards and found that after full maturity and the completion of growth the liability to pass albumin ceased altogether.

So far, then, the evidence suggests that we need not take a serious view of this disorder. It is indeed pathological, as chilblains and urticaria are pathological, and the term "physiological albuminuria" is a misnomer. But the prognosis is mainly that of the state of blood-debility, of which it is only a symptom. For life-insurance purposes I advise that a small extra be usually imposed, but some cases, after the urine has become free from albumin, may be taken as first-class lives.

Treatment.—Clinical instinct has not been at fault in the treatment of these cases, albeit their pathology was unknown. Rest in bed, a milk diet, saline purgation, iron, and nux vomica—tonics for the blood and nervous system—these means were used long ago and they cured the disorder. Rest may, however, be overdone, for, as Armstrong[25] has well pointed out, the school boy is all the better for his fresh air and play, though he should not compete in races. The value of milk is probably due to the calcium which it contains; and the salines produce a watery osmosis which renders the blood more concentrated. Alcohol should not be given, for it is a "lymphagogue," and is suspected of producing the disorder. The direct use of calcium lactate gives us a new and effectual means of altering the blood state on which the transudation of albumin depends. It is needful in some cases to continue its use over a long period. Nies[37] has recently studied a case in which calcium salts were not absorbed, but those of strontium and magnesium were absorbed with facility, and had a coagulative effect. Possibly Cases 8 and 9 (above) were of this kind. It would be well to try a dose (15 to 30 grains) of strontium lactate when the albuminuria is refractory to the calcium salt.

Bibliography.—1 Sir W. W. Gull, quoted by Moxon (see below); also in discussion before the Royal Medical and Chirurgical Society, 1873 (not verified). 2 Sir Andrew Clark: London Hospital Reports, vol. i., 1854, pp. 225, 227, 235. 3 Vogel, in Virchow's Handbuch, 1853, quoted by Jaccoud. 4 Jaccoud: Article Albuminurie, in Nouveau Dictionnaire de Médecine et de Chirurgie, Paris, 1864, tome i., pp. 526, 530. His words are: "Dans quelques cas exceptionnels . . une albuminurie, quelque persistante, n'a pas d'autre signification pronostique qu'une albuminurie passagère. ...... La découverte de l'albuminurie a été purement fortuite, et sans cette circonstance, ces individus auraient

TABLE C.—*Calcutta, 1904 (Mortality at Bengal Rates).*

Ages (years).	Males.	Females.
Under 5	31,494 @ 101·7 = 3203	28,851 @ 87 5 = 2526
5 to 10	31,717 @ 18·65 = 591	28,406 @ 15·85 = 450
10 to 15	40,393 @ 13 95 = 566	24,304 @ 12 77 = 310
15 to 20	51,964 @ 16 74 = 870	26,574 @ 17·73 = 471
20 to 30	151,637 @ 18·38 = 2787	54,770 @ 19·01 = 1041
30 to 40	120,215 @ 20·67 = 2485	45,359 @ 19·46 = 882
40 to 50	74,523 @ 26 05 = 1941	34,797 @ 24·18 = 841
50 to 60	37,676 @ 38·24 = 1459	22,389 @ 35·33 = 791
60 and upwards ...	22,872 @ 76·14 = 1740	19,740 @ 61·72 = 1218
Totals	562,696 15,642	285,200 8530

Male rate = 27·9. Female rate = 29 8. 24,172 deaths on population of 847,796 = rate of 28 6 per 1000.

which gives a rate (in case of Calcutta) higher than is obtained by the conventional process but which, I contend, represents the true death-rate of a city. (See Table D, below).

TABLE D.—*Miniature Bengal Population (Calcutta) at Calcutta Rates.*

Ages (years).	Males.		Females.	
Under 5	55,955	@ 111·1 = 6,216	66,194	@ 108·9 = 6,555
5 to 10	64,432	@ 20·0 = 1,288	62,737	@ 22·3 = 1,399
10 to 15	52,663	@ 17·0 = 1,513	42,390	@ 20·9 = 1,683
15 to 20	36,455		38,151	
20 to 30	70,367	@ 18 4 = 2,402	75,454	@ 25·3 = 3,324
30 to 40	60,194		55,955	
40 to 50	41,542	@ 25·8 = 1,684	38,999	@ 27·0 = 1,716
50 to 60	23,738		24,586	
60 and upwards	19,499	@ 97·6 = 1,903	24,586	@ 128·4 = 3,156
Totals	424,745	15,006	423,052	17,833

Male rate, 35·3. Female rate, 42 1. Combined rate, 38·7 per 1000.

We may put these calculations in a graphic way. To obtain the standard rate for a city we, so to speak, transport the city population to conditions of life (liability to death) such as rule for the average of the whole country. By the suggested method we import the standard population into the city and place it under the conditions of life ruling in the city and we obtain thereby a rate which represents the effects of the particular city life on the standard population (Table D). It is contended that the Registrar-General's method does not give a correct result when worked on such an exceptional population as that of Calcutta in which not only are there twice the number of males as of females (and an enormous excess at certain age periods) but death-rates for males much lower at nearly all ages than those for females. The effect of the great excess of the male population at healthy ages in Calcutta is so marked that if the male population be equalised to the female at all ages the death-rate works out at 37·2 per 1000. Contrast even this correction with that usually adopted.

Bengal "standard" rate (rate for 1904) ... 32 45
Calcutta standard rate ... ... 28·6

$$\frac{32\ 45}{28·51}\ 1·1381 \text{ (factor for 1904)}$$

Calcutta crude death-rate .. 32·2 per 1000
32·2 × 1·1381 = 36·6 (corrected rate)

$$\text{Comparative mortality figure (1904)} \ldots \frac{36·6}{32\ 45} \times 1000 = 1127$$

To sum up; a miniature standard (Bengal) population (equal to Calcutta, viz., 847,796) with age and sex constitution as of Bengal at rates of mortality ruling in Calcutta gives a death-rate for the city of 38·7 per 1000 (see Table D), as compared with 36·6 by the usual method of correction.

Calcutta.

THE INDUCTION OF HYPNOSIS.

BY EDWIN ASH, M.B., B.S. LOND.,
SOMETIME DEMONSTRATOR OF PHYSIOLOGY AND HOUSE PHYSICIAN AT ST. MARY'S HOSPITAL, PADDINGTON, W.

THE correspondence arising from the account of my experiments published in THE LANCET a few months ago,[1] has shown me that there is a very widespread interest in the subject of hypnosis, an interest which is coupled with an extraordinary ignorance of the huge literature that deals with this condition and in some quarters expressed by a still more extraordinary scepticism as to the existence of such a mental state. The interest thus evidenced has prompted me to give some further account of my investigations during the last six months, and to show that the condition of hypnosis can be examined by anyone who takes the trouble to put himself in possession of the requisite technical knowledge and is prepared to devote time to a definite series of experiments. My own interest in the question arose some two or three years ago, and when after months of trial I had not succeeded in obtaining a condition in the least resembling hypnosis (but had caused a good deal of amusement among my friends), my position became that of the antagonistic sceptic rather than of the unprejudiced investigator. These early attempts were made on hysterical patients of a somewhat low order of intelligence and, as I now know, my methods were hopelessly crude. After a careful study of the hypnotic literature, a continuation of my experiments with healthy male subjects was rewarded by results which conclusively proved to my mind that the recorded experimental phenomena of hypnosis were genuine enough, and a description of some of these experiments formed the basis of the paper I have referred to.

It is curious that most of us should be more sceptical with regard to hypnotic experiments than to other investigations. Perhaps this is because the medical curriculum excludes all reference to the subject and because to the majority of practitioners the writings of such men as Liébeault, Bernheim, Charcot, Braid, Esdaile, Elliotson, Moll, Wetterstrand, Bramwell, Tuckey, van Eeden, and van Renterghem are absolutely unknown. An experience such as mine makes one somewhat ashamed to have ever doubted the evidence of the many workers in this field. As a matter of fact the general agreement as to phenomena observed, recorded in so many separate centres, is the most powerful argument that can be brought to bear on the individual who persists that the investigators of hypnosis have been deceived in their observations.

The popular conception of hypnosis is that of a condition in which the subject has been deprived of all freedom of mind by the "will" of the operator. Moreover, that this latter must be a person of extraordinary "will-power," with the special facility of overcoming "weaker wills" whenever he feels so inclined; the fact that his victim may be *hundreds of miles away* seems to be of little importance. This sort of pernicious rubbish is served out to the public by the day and by the week—a public that will absorb nonsense referring to "mind" or "will" even more readily than that referring to "backache" and "liver." On the other hand, those who take the trouble to examine the condition will find that success in producing hypnosis depends rather more on the wish of the subject than on the "will" of the operator—that is to say, in ordinary circumstances if a person does not *want to* be hypnotised you cannot influence him, hypnosis being a state in which by fixing the attention the mind tends to become a blank for the time being and is *consequently* peculiarly receptive to impressions from without, such as may be given by verbal suggestion. The thing is to get the subject to fix his attention and to inhibit the natural stream of thought; then it is as if you had a blank screen on which to project ideas or pictures. If the fixation of attention is great enough or the subject's natural powers of inhibition are strong enough a condition resembling sleep ensues. Thus there are two phases of hypnosis—one in which the fixation of attention is incomplete, so that the subject, although amenable to suggestion, is yet perfectly conscious of his surroundings; the other in which the inhibition of thought is so complete that he loses touch with common. These are found mostly in connexion with malaria. Golgi[1] was the first to observe a case of double infection in a Sardinian who was suffering from daily fever of different intensity. He found quartan parasites and afterwards malignant tertian parasites. Canalis[2] observed infection of benign tertian with quartan or with malignant tertian. Romaniskwy[3] observed combination of quartan with malignant tertian in three cases. Di Mattei[4] injected a tropical parasite infected patient with quartan parasites from another patient and found the tropical parasites with quartan. Vincenzi[5] observed two cases of malignant tertian with quartan. Thayer and Hewetson[6] found out of 542 malaria-infected cases 11 mixed cases, specially malignant tertian with benign tertian. Koch[7] found out of 72 cases of malaria two mixed cases (malignant tertian and quartan). Mannaberg[8] saw two cases in which the blood showed malignant tertian and benign tertian parasites. Ruge[9] described some cases of benign tertian and malignant tertian with charts. He observes that both parasites cannot remain for a long time beside one another. The small rings crowd out the large rings, and Mattei has shown by inoculation experiments that either this happens or that the big parasites crowd out of the field the malignant tertian parasites. He also observed cases of malignant tertian with quartan. He says that combination of benign tertian with quartan is possible theoretically but he has no personal experience of a case. Serg Marc[10] observed 3 per cent. of double infections in an epidemic of malaria in Turkestan.

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[1] cet, Jan. 27th, 1906, p. 216.

Mixed infection of malignant tertian with benign tertian or quartan is not very uncommon in Calcutta. Altogether nine cases of double infection (seven benign tertian with malignant tertian, and two malignant tertian with quartan) came under my observation. Cases of combination of three varieties of malaria parasites are, however, very rare. Serg Marc[11] observed a single case but he is doubtful whether it can be called a true case of triple infection; the following is a short account of the case A patient was admitted into the military hospital at Tashkend for quartan fever on Feb. 17th, 1902. On the 18th examination of the blood showed quartan parasites only. On the 19th quartan schizonts with from six to eight divisions were found. On the 20th there were very few quartan parasites and on the 21st one quartan and a parasite which was evidently from its characters not a quartan parasite but a benign tertian parasite. On the 22nd two quartan and five benign tertian young amœboid forms and *one crescent* were found. 30 blood specimens prepared on the same day showed no more malignant tertian parasites. The blood was examined every day up to March 9th but no more malignant tertian parasites were found. Celli observed a case of triple infection but details of it cannot be found in the reference books available here; nor could I find reference to any other case of true triple infection.

Combination of three varieties of malaria parasites with filaria as observed by me in Case 1 must be very rare; and I could not find reference to a single case of a similar nature. Double infection of a single variety of malaria parasite with filaria has no doubt been observed. Selous[12] reported a case of benign tertian with filaria. Last year a case of fever was admitted in one of the hospitals in Calcutta, which was treated as a case of filariasis on account of the presence of filaria in the blood, though the blood of the patient was crammed with crescents, which were detected accidentally in examining for the filaria.

In conclusion I beg to thank Lieutenant-Colonel G. F. A. Harris, I.M.S., visiting physician, Calcutta Medical College Hospital, for kindly allowing me to publish Case 1.

Calcutta.

ON THE CORRECTION OF DEATH-RATES

BY T. FREDERICK PEARSE, M.D. BRUX.,
F.R.C.S. ENG., D.P.H. CANTAB.,
ACTING HEALTH OFFICER OF CALCUTTA.

FOR some time past I have had doubts as to the sufficienc of the Registrar-General's method for working out the so called "corrected" death-rate for a town or district. Thi "corrected" death-rate may be approximately correct whe the *numbers* at the several age *periods* are *approximatel* equal and have nearly equal death-rates, but I shal endeavour to show that the usual method will not produce correct result when there is a great difference in the number at the several age periods and at the same time there ar widely different rates of mortality. I take for my exampl the city of Calcutta, the population of which is shown i the following table (Table A.):—

TABLE A.—*Mortality of Calcutta, 1904.*

Ages (years).	Population of Calcutta, census 1901.			Deaths, 1904.			Recorded death-rates.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 5 ...	31,494	28,861	60,355	3,501	3,143	6,644	111·1	108·9	110·
5 to 10 ...	31,717	28,406	60,123	635	635	1,271	20·0	22 3	21·
10 to 20 ...	92 562	50,878	143,440	1,578	1,062	2,644	17·0	20·9	18·
20 to 40 ...	271,852	100,129	371,981	5,008	2,540	7,548	18 4	25 3	20·
40 to 60 ...	112,099	57,186	169,285	2,902	1,545	4,447	25·8	27·0	26·
60 and upwards ...	22,872	19,740	42,612	2,233	2,536	4,769	97·6	128·4	111·
Totals ...	562,596	285,200	847,796	15,858	11,465	27,323	28·1	40·1	32·

As a standard I take Bengal with a population of ove 70,000,000, a miniature of which is shown in the next tabl (Table B).

TABLE B.—*A Miniature Bengal Population (847,796) at Bengal Rates.*

Ages (years).	Males.		Females.	
Under 5	55,955 @ 101·7 = 5694		60,194 @ 87·6 = 5278	
5 to 10	64,432 @ 18·65 = 1201		62,737 @ 15 85 = 994	
10 to 15	52,563 @ 13·95 = 733		42,390 @ 12·77 = 541	
15 to 20	36,455 @ 16·74 = 610		38,151 @ 17 73 = 676	
20 to 30	70,367 @ 18·38 = 1293		75,454 @ 19 01 = 1434	
30 to 40	60,194 @ 20·67 = 1244		55,955 @ 19 46 = 1089	
40 to 50	41,542 @ 26·05 = 1032		38,999 @ 24·18 = 943	
50 to 60	23,738 @ 38 84 = 922		24,586 @ 35·33 = 868	
60 and upwards ...	19,499 @ 76·14 = 1484		24,506 @ 61·72 = 1517	
Totals	424,745	14,263	423,052	13,340

Male rate = 33·5. Female rate = 31·5. General rate = 32·5.

Calcutta in 1904 had a recorded death-rate of 32·2 while Bengal had a rate of 32·45. The "*standard*" death-rate for Calcutta is 28·6 (see Table C below) and the death-rate corrected by the usual method is 36·6.

My proposal is that a *miniature* population of the *standard* should be taken (equal in total to that of the city under correction) and that to the numbers of this miniature standard at the several age *periods* and in the two sexes the death-rates of the city under correction should be applied. By this method we obtain a hypothetical number of deaths induction of hypnosis by making the subject gaze at a bright object held about 12 inches above, and in front of, his eyes. A convenient form of hypnoscope consists of a bright disc or mirror about one inch in diameter, mounted on a dull black surface from six to eight inches in diameter. The subject is told that by gazing at the disc he will become drowsy and eventually fall asleep; his attention being fixed on the disc and then by suggestion directed to the idea of sleep which you endeavour to make dominant. Braid originally let his subjects gaze at a bright object until they became spontaneously hypnotised, but this method takes a much longer time than if combined with suggestion, and, moreover, is frequently followed by an unpleasant congestion of the patient's conjunctivæ. Having once obtained drowsiness and stiffness of the eyelids by either of the above-mentioned methods, it will be found possible with well-chosen subjects to produce subsequently the deeper stages. But at first it requires infinite patience and confidence, and a good deal of disappointment is often felt because the subjects will not fall into deep somnambulism at the mere bidding of the tyro. After considerable practice it will be found that the more adroitly the suggestions are given the more readily can the subject be led into the deeper stages of hypnosis. And whereas at first it will be found almost impossible to produce anything approaching anæsthesia, after some experiments analgesia will be produced in quite a large number of subjects; sufficient, indeed, for the painless performance of various minor operations. These points are best illustrated by an account of actual experiments. I extract the following from my notes:—

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[1] Golgi: Sul Ciclo Evolutivo del Parasiti Malarici nella Febbre Terzana, Archivo delle Scienze Medichi, 1889, vol xiii.

[2] P. Canalis: Studie sulla Infezione Malarina, ebenda, 1890, vol. xliv.

[3] Romaniskwy: *Zur Diagnose* der Irregularen in dem Malaria-Fieber, Wratsch, 1892.

[4] Di Mattei Ebenda, 1895, vol. xix.

[5] Vincenzi: Ebenda, 1895, vol. xix.

[6] Thayer and *Hewetson*: *The* Malarial Fevers of Baltimore, John Hopkins Hospital Reports, 1895, vol. v.

[7] R Koch: Reiseberichte, Berlin, 1898.

[8] Mannaberg: Die Malaria-Krankheiten, 1899.

[9] Ruge: Handbuch der *Pathogenen* Mikro organismen.

[10] Serg Marc: Die Malaria in Turkestan, Zeitschrift für Hygiene, Band xlv.

[11] Ibid.

[12] *C. F. Selous*: THE LANCET, Nov. 5th, 1904, p. 1284.

A. Subject—man, aged 21 years. Had been a hairdressers' assistant. Fatigued his eyes with disc. Produced *no sleep* but slight stiffness of eyelids. Several more attempts were made to induce hypnosis by making a sudden pass in front of his face, whilst his eyes were fixed on my ring. This was eventually successful, so that half an hour from the commencement of the experiment he was in a condition of somnolence but very easily roused. I was unable to produce rigidity of the arm, nor could I obtain the phenomena of somnambulism. Again induced hypnosis and then suggested that on opening his eyes he should find himself in the last shop he had worked at. This was successful; he described a "wheel" which he said he saw in a corner of the room. I found he meant the apparatus which is used for hair-brushing. He did not see anything else but responded in part to several similar suggestions.

Up to this time the subject had apparently been in the intermediate or dream-stage as he subsequently could recollect having seen these various things as if in a dream, being aware of the fact that he was seated in my room. But he then evidently became somnambulic as he had no recollection of the succeeding incidents, which occurred as follows. 1. Having recalled the "wheel" to his mind, I told him to turn it; he went towards the imaginary machine and made movements appropriate to wheel-turning. 2. I told him to write down his name and address, which he did. He was very surprised afterwards when I showed him the paper. 3. I succeeded in producing transient catalepsy of one arm. 4. I produced analgesia, which, however, I do not think was complete. In subsequent experiments the deeper phenomena of hypnosis were readily obtained. He was very susceptible and became somnambulic in the first experiment, although care and patience were necessary to induce this stage. A beginner would be fortunate to find so good a subject for his early experiments.

B. Subject—youth, aged 13 years. Found him a difficult subject to influence, but by varying my methods I gradually induced the earlier stages of hypnosis and obtained an early phase of the dream-state. He was quite aware of his surroundings but happened to be a good visualist, so that I could successfully throw various pictures on to the mental screen.

With this subject I was unable to obtain a permanent somnambulic stage until the fifth experiment or sitting. And even then several more experiments were necessary before I could elicit the phenomena of active somnambulism. However, he eventually became deeply somnambulic and is of peculiar interest, because although he will accept readily the majority of hallucinatory suggestions, yet he maintains a definite choice of action in regard to acts that he does not approve of, or which seem to be absolutely incongruous. For example, I accidentally discovered that he was a teetotaler by offering him an imaginary glass of beer. For a long time he refused to drink it, but eventually, after persuading him that it was extremely mild and that he was doing it to please me he decided that he would drink it. He would not agree to drink anything stronger

On another occasion I told him that he was a milkman serving customers and then that he ought not to serve out white paint for milk. In return for this I was abused roundly—he said that he would not serve me with milk again as it was waste of time. He refused absolutely the suggestion that he was taking round paint. I persisted, however, and after getting several witnesses to act as imaginary customers and each to tell the subject that he was serving out paint instead of milk, he began to waver. He argued at great length that the milk was all right and in imagination drank a glass to show that this was so. He admitted that it smelt of paint and decided to take it back to his "guv'nor."

The interest of this experiment lies in the fact that the subject possesses considerable initiation if he likes to exert it. If you place him in an imaginary scene he will *rationally* act that scene, behaving with the same propriety and common sense as he would in everyday life.

These notes show how hypnosis was induced, and subsequently deepened, in two healthy young men chosen by mere chance for the purpose. They were aware of the nature of the experiments and were perfectly willing subjects.

May I repeat that by following out some plan of experiments similar to the above anyone interested in hypnosis can investigate the condition for himself. And whoever does so will see that far from being an extraordinary mastery of one will over another hypnosis is rather a simple state of distracted attention which can frequently be terminated by an effort of will on the part of the subject, but is, indeed, a condition in which suggestion has remarkable force by directing the attention to some idea which then becomes dominant for the time being. For example, a person has some pain; you tell him he has *not* but your suggestion makes no difference to his sufferings. You hypnotise him—that is, you distract his attention from his surroundings, including the pain—and he no longer suffers. By suggestion you raise in his mind the idea that his pain has entirely gone; this idea becomes dominant and eventually persistent, so that in waking he no longer has pain; the idea of *pain* has been dominated by the idea of *no pain*—they cannot be coexistent. In this way those who take the trouble to investigate the condition soon perceive what an important therapeutic agent we have ready to hand in hypnosis.

During the past few months my own experiments have been chiefly devoted to the investigation of methods of induction and of the experimental phenomena, but I have had opportunities of testing the efficacy of suggestion during hypnosis in several cases presenting various functional neuroses and have been more than satisfied with the results. Of course, there are limitations to the employment of this method. It is not applicable in the wards of a general hospital. Personally, I find the same difficulty, if not impossibility, of inducing hypnosis in a hospital ward as I did when first using hypnosis some years ago. This is undoubtedly because the patients' attention is distracted by their surroundings and the knowledge that they are for the time being an object of interest to everybody in the ward. On the other hand, I have known patients who have been refractory in the ward become readily influenced when treated in a quiet room apart from the other patients. Consequently, unless some special arrangement is made for treatment by this method its use in hospital will be productive of disappointment. Of course, in institutions where hypnosis is the rule rather than the exception these difficulties are not met with, as in Bernheim's hospital at Nancy, where he hypnotised large numbers of patients at every visit. Again, under certain conditions hypnotic analgesia would be extremely useful in minor surgery and in operations on the nose, throat, or eyes, to say nothing of dental extractions. But at present we have no certain method of rapidly inducing hypnotic anæsthesia and several sittings are necessary to obtain a satisfactory result; so that, although it certainly could be used with advantage for this purpose in private practice, it is doubtful if it will ever be used to any great extent in hospital work. The advantages of this form of anæsthesia for such operations as I have indicated are its absolute safety, that it can be prolonged indefinitely at the wish of the operator, and for operations in the mouth the jaw can be fixed open without the use of a gag. Moreover, reflex struggles can be entirely avoided by giving the necessary suggestions.

In conclusion, I trust that these brief notes will be helpful to many practitioners who are anxious to make use of hypnotic suggestion in their work or who want to investigate the condition from the purely psychological standpoint. Also, I shall be glad if they will help to place the subject of hypnosis on a more rational and satisfactory basis. In the scores of hypnotic experiments I have made I have never seen anything which would lead me to suppose the existence of any "mysterious" influence between the operator and his subject; neither have I seen any untoward results happen to my subjects. It seems such a pity that the majority of us in practice have neglected such a powerful therapeutic agent because we have not taken the trouble to understand it properly. No doubt when it is recognised that the keynote of hypnosis is an artificial distraction of "attention" and not an uncanny influence, the usefulness his surroundings and is to all intents and purposes asleep To say that one has inhibited the "supraliminal consciousness" or "objective mind" and unmasked the "subliminal consciousness" or "subjective mind" is really only another way of expressing the above process It obviously requires no particular inherent property or power to help a person to *fix his attention so as to stop his train of thought*—a process which may be to great extent mechanical and consequently will require some adroitness of method. So that anybody who has tried various methods of bringing about this desired object and has studied the best means of distracting a subject's attention from his surroundings and "fixing it," and has carefully observed the conditions that predispose to success, will be more readily able to induce hypnosis than another who tried at hazard to use a method he has read about but of which he has no technical knowledge. It stands to reason that the conditions that will readily fix one person's attention will perhaps disturb another person to such an extent that he will think faster than ever, instead of lapsing into a state of mental calm.

Let it be clearly understood then that an expert hypnotist is not a person endowed with some mysterious power, but is somebody who has taken the trouble to study carefully the psychology of his subjects, with the object of ascertaining what means are likely to succeed best in bringing about in them a state of mental rest, suiting his methods to every individual case. Psychologists define "Attention" as mental activity which 'raises certain sensations or ideas in point of intensity and completeness, with a corresponding lowering of simultaneously presented impressions—a process familiar to everybody in daily life. How many people habitually close their eyes when they wish to appreciate music fully, striving to subordinate all impressions to that of sound, the appreciation of which then rises in intensity above that of the rest. Similarly a surgeon will often fix his eyes on some distant object so as to let nothing distract attention from his tactile sense which is at that moment engaged in giving an impression of some intra abdominal disorder. *In this fixation of attention we have, I am convinced, the key to the problems of hypnosis.* The attention is fixed on some point—for example, a bright disc—and is then readily transferred to the ideas and sensations suggested by the experimenter.

Let us now examine the readiest means of so fixing a person's attention as to induce hypnosis and consider the experimental phenomena that can be demonstrated in that condition. As a matter of fact, to anybody who has not had previous experience of hypnotic experiments and is anxious to induce hypnosis the subject is at first of greater importance than the method. There are a large number of people who are readily able to "stop thinking" and to fix their attention at will. Such people are usually in the best of health, unaccustomed to worry over trifles, and do not know what it is to have disturbed sleep or difficulty in getting to sleep. They are "susceptible to hypnosis" and may be found most frequently, as one would suppose, in the healthy working male population between the ages of 15 and 30 years. The experimenter, therefore, should find such a subject and explain to him the nature of the proposed experiments. On no account begin with people in feeble health or who are "neurotic"; males being preferable to females. And having made himself familiar with the described phenomena of hypnosis he should decide which of these he wishes to obtain in the first experiment. This is where so many fail.

Hypnosis may be very roughtly divided into three stages, namely—1. A condition of drowsiness and inability to open the eyes when forbidden to do so. 2 A dream-state in which various ideas suggested appear to the subject as if in a dream or picture. In both these stages the subject is uite aware of his surroundings and that he is being made he centre of an experiment. He feels lethargic and disinclined to move and that he cannot move his eyelids or limbs when told not to do so by the operator. 3. In the third stage the attention has been so completely distracted from present surroundings that the subject has fallen into a condition of sleep. In this state he is peculiarly amenable to suggestion, will talk when spoken to, and will describe various hallucinatory scenes that are suggested to him; and may walk about and take active part in these imaginary scenes. This is what is described as *Somnambulism* and is a condition in which an infinite variety of hallucinations may be suggested—visual, auditory, and æsthetic. When complete the subject has no subsequent recollection of his hallucinations. A characteristic condition that can usually be produced in almost any stage is that of Catalepsy; if the subject's attention be directed to any limb and it is suggested that the limb is becoming stiff an extraordinary rigidity will result, of variable duration, and for the time being quite preventing any voluntary movement of the limb affected.

Now it should be obvious that it is too much to expect that the beginner in his first experiment will succeed in producing the deeper stages of hypnosis. He must be satisfied if after many attempts he succeeds in preventing the subject opening his eyes when told he cannot do so Experience shows that some really susceptible subjects are not much influenced at the first sitting. The novelty of the experiment and the unusual requests made as to behaviour tend to produce at first a state of unrest rather than of calm. However, people very soon get accustomed to the process and the deeper stages can often be obtained at the third or fourth sitting. It is best to follow out a scheme in the experiments such as the following, which was arranged by me for the benefit of practitioners who ask for instructions in the technique of hypnosis.

Instructions for inducing hypnosis.—Carry out a series of eight experiments, each of which will undoubtedly consist of several attempts to obtain certain phenomena; these should be repeated until the required result has been obtained. The experiments are: (1) to get used to the necessary details as to surroundings and technique of the process, and, further, then to attempt the production of stiffness or immobility in the subject's eyelids; (2) to induce hypnosis by a modification of Braid's method of fixed gazing; (3) production of the intermediate dream-state; (4) to obtain passive somnambulism; (5) to change this passive state into a condition of active somnambulism; (N.B., these experiments include the investigation of altered sensibility (analgesia and anæsthesia) and the production of catalepsy; (6) demonstration of post-hypnotic influence; (7) hypotaxy or fascination; and (8) hypnosis by passes Space will not permit me to enter into a detailed description of the above course of experiments, consequently I must be content with mentioning a few of the more important points. The instructions I give for the first experiment are briefly as follows.

Experiment 1.—1. Seat the patient in a comfortable armchair with his back towards the light and see that he is comfortable in every respect, especially that his head and neck are not in a strained position (this happens with so many chairs that *look comfortable*). 2. Tell him that when you say "Now" he is to close his eyes and not to analyse his sensations nor to resist the feeling of loss of contact with his surroundings that will tend to overcome him. 3. Place the thumb of the right hand on the centre of the subject's forehead, resting the fingers in the left temporal region. 4 Suddenly press firmly with the thumb, at the same time drawing it downwards towards the root of the nose. Then say, "Now close your eyes," in a quiet but very clear and firm voice. 5. Repeat the friction movement with the thumb several times rapidly (four or five movements may be sufficient). 6 Remove the hand quickly and say, "You *cannot* open your eyes, they are very stiff—firmly fixed—and you *cannot* move the lids."

Result of experiment.—1. At first the subject will probably open his eyes with very little difficulty, but you assure him that they were stiff and did not open as quickly as usual. 2. Repeat the experiment half a dozen times. 3. Above all, *be confident.* Let your subject know that it is only a *matter of time*; that very shortly he will be unable to open his eyes when you tell him he cannot. 4. With a susceptible subject you will find that the eyelids become stiffer at each attempt, then there will follow a *momentary* inability to open them, and finally, absolute closure which remains until you tell the subject he can open his eyes again. Having done this you will have got over the first stage successfully, and, what is extremely important, you will have gained a vast amount of *self-confidence.* (N.B.—1. Throughout the experiment let your manner be quiet, sure, and decided. 2. Let there be no hurry and no manifestation of impatience. 3. Should the subject open his eyes readily, be quite unperturbed, and say as firmly as before "Just once more, if you please," or words to that effect. 4. If you are losing confidence postpone the experiment to another day. 5. In any case do not prolong the first experiment over half an hour.)

Experiment 2.—The second experiment deals with the by Morat and Dastre on the sympathetic nervous system. The work is divided into two parts, Part I. dealing with elementary nervous functions, occupying a little over 100 pages, while Part II. treats of elementary systematic functions.

The first part deals with general nerve physiology, here many of the illustrations and apparatus are taken from Waller's *Physiology*. By far the most interesting section is that on systematic functions which originate in the associations and definite relationships established between the cellular functions.

The scope of the second part will be best understood by referring in broad terms to its subject matter under the head of *Sensibility and Movement: their Relations.* Under this head spinal and cranial nerves are dealt with. Following on this are what the author calls "primary systematisations," which include such subjects as reflexes, inhibition or arrest of reflexes, and classification of nerves. This leads to a study of "Consciousness and Unconsciousness," including such subjects as dispersion and reflexion of the excitations, the great sympathetic nervous system, transmission and centralisation of stimuli, and the medulla oblongata. Under the head of "Superior Systematisations" the following problems are discussed: orientation and equilibrium; the functions of the cerebellum; the emotions and intelligence; cerebral localisation; specific innervations, including the sensory field, tactile innervation, and the muscular sense; visual innervation; auditory innervation; olfactory and gustatory innervation; and, lastly, language and ideation. The author assumes the existence of the neuron as the static unit of the nervous system, but looks on this cellular unit as a *symbiosis* in the sense that to the fundamental cell, of which it consists, others are added which in a way form one structure with it. Corresponding to this unit, the author postulates a dynamic unit "by the unsatisfactory name of elementary nervous irritability." We find the word "force" used and applied as "chemical," "caloric," and "electric."

Professor Morat it will be seen treats his whole subject in a novel and original way. Proceeding from the simple arrangement of spinal nerves he gradually evolves his matter in a most interesting manner, setting it forth with all the precision and clearness that characterise the writings of a cultivated Frenchman. Numerous anatomical illustrations—many from Poirrier and Charpy and van Gehuchten—greatly aid the reader in the chapter dealing with the cranial and other nerves. A very terse and explicit account is given of the spinal and other reflexes of the cord and the sympathetic system; all these subjects are illustrated by numerous diagrams, some of them in colour. A remarkably vivid picture is that (Fig. 129) showing the effect of stimulation of the cervical sympathetic in the dog on the blood-vessels of the mucous membrane of the mouth and tongue. Better illustrations are given of the effects of removal—whole or partial—of the cerebellum than are given in English books. We refer to the results of Luciani and Thomas. In connexion with localisation in the cortex, as defined by Sherrington and Grünbaum by the unipolar method, we failed to find a sketch of the cortex cerebri showing graphically the disposition of the motor areas in the anthropoid apes. In connexion with auditory innervation the author adopts the classification of Bonnier and treats of the baræsthetic, manæsthetic, and seisæsthetic functions of this apparatus—terms which so far have not found a place in English text-books. There is a fairly complete bibliography appended to each chapter.

We welcome this translation as it introduces many new ways of looking at nervous activity in its various forms, while it may be regarded as setting forth the views of one whose name stands high both as an investigator and expositor amongst contemporary French physiologists.

Preservatives in Food and Food Examination. By JOHN C. THRESH, M.D.Vict., D.Sc. Lond., F.I.C.; and ARTHUR E. PORTER, M.D., M.A. Cantab. London: J. & A. Churchill. 1906. Pp. 484. Price 14*s*. net.

THE important question of preservatives in food has been strongly revived by the recent meat trade scandals; and owing perhaps to the same disclosures certain of the recommendations of the Departmental Committee on Food Preservatives, which was appointed in 1899 and which reported in 1901, have received official recognition, since not many weeks ago the Local Government Board issued a circular to public health authorities and others asking for their coöperation in stamping out the practice of preserving milk with antiseptics.

At first sight the book of Dr. Thresh and Dr. Porter would appear to have been written in defence of the preservative. In the preface, for example, they express the opinion that the dangers arising from the use of preservatives have been greatly exaggerated. Further on, however, they admit that certain preservatives, either from their quality or from their use in excessive quantity, have an injurious effect upon health, and that the further increase in the use of preservatives may by their cumulative action deleteriously affect certain organs or insidiously undermine the constitution. The authors therefore approach the subject in the right spirit, anxious as far as possible to elucidate the truth. As far back as 1897, in a special commission on the subject, we expressed the opinion that in certain circumstances and in certain foods a minimum quantity of a given preservative might be allowed, and that it should be the duty of the legislature to protect the public against the abuse of such a concession. The recommendations of the Departmental Committee appeared four years later and were practically in agreement with this view. They proposed the prohibition of any antiseptic whatever being added to milk, or infant and invalid foods. They suggested that a limited quantity of borax might be allowed in cream and butter or salicylic acid in wine, but ruled out the use of formaldehyde entirely as well as the addition of copper salts to peas. These recommendations made five years ago are, unfortunately, still recommendations; they are often regarded, however, as semi-official and proceedings in the police courts are accordingly based on them with the result that the most diverse decisions are given. It is not difficult to gather from their treatment of the subject that Dr. Thresh and Dr. Porter on the whole favourably regard the conclusions of this committee, and we think ourselves that the report was an excellent and able one, threatening no hardships to any man and providing means for the protection of the public against an abuse of privilege.

One aspect of the subject, we suggest, has escaped the authors. "It would certainly be strange," they write, "if with the advance of scientific knowledge better preservatives could not be discovered than those which were originally discovered by uncivilised or semi-civilised man, yet the old preservatives are permitted without question although some of them are more deleterious if taken in immoderate quantities than their more modern substitutes." The authors have surely forgotten that the fact that a ham or a haddock, for example, is preserved with smoke is patent to everybody, there can be no deception about it. None, however, but the scientific analyst can decide whether food is preserved with borax. Modern preservatives, of which the authors speak, are, in fact, "silent" in the sense that, as a rule, they possess no taste or smell which would reveal their presence. Moreover, smoke not only preserves meats but gives them also a flavour which is esteemed. Smoke and salt are thus in the same class, inasmuch as they are condiments as well as preservatives. We do not imagine that of the condition will be more thoroughly appreciated by both the profession and the public.

Duchess-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF PARAMYOCLONUS MULTIPLEX WITH FIBRILLARY TREMORS.

By A. W. Falconer, M.B., Ch.B. Aberd.,
house physician, bradford royal infirmary.

The patient, a male, aged 32 years, was admitted to Bradford Royal Infirmary under the care of Mr. T. Wilmot. The patient had not worked for about 15 months. He gave up work on account of general weakness. For about 12 months he had had violent twitchings of his muscles. They began *in the muscles of his leg* but rapidly involved the shoulder muscles. The *contractions caused no pain*. He was able to get about but could only walk slowly and with great care. He had never fallen. For the last five months he had been almost constantly in bed. Otherwise he had nothing to complain of. There was no history of fits or of any nervous disease in the family.

On admission the patient was found to be a well-nourished man. The temperature was 98·4° F. and the pulse was 80. As he lay in bed he was suddenly seized with extremely rapid muscular contractions of the muscles of all his extremities and of both platysmas. The face, with the exception of the platysmas and the *depressor anguli oris*, was not affected. In the arms the muscles most affected were the deltoid and triceps, in the back the trapezei and latissimi dorsi. Occasional twitchings were seen in the flexors of the forearms, but they were not nearly so frequent or so violent as those of the muscles of the shoulder girdle. When the patient sat up slight twitching could also be seen in the erector spinæ. In the legs the quadriceps extensors were much the most affected. The hamstrings were affected to a much less extent. Contractions could also be seen occasionally in the tibiales antici. In both quadriceps extensors fine, fast, *fibrillary tremors could be* frequently seen though they were not constant. The same tremors, though to a less extent, could be seen in both deltoids. The contractions were extremely rapid, quite painless, and generally symmetrical, though at times, especially the contractions of the muscles of the forearm and leg, were limited to one side. The right platysma was more affected than the left and here frequently numerous contractions followed one another and seemed to end in a short tonic contraction. Voluntary movement for a time inhibited the contractions, but in a few seconds they began again—e.g., the patient could touch his nose with his forefinger accurately, but if he continued to do so the movements commenced again and soon became more violent than before. The patient's gait was normal though slow. While walking the movements of the legs ceased but those of the trunk continued. Romberg's sign was negative. The movements quite ceased in sleep. There were no paralysis, no *rigidity*, and no wasting of any of the muscles. The superficial and organic reflexes were normal. The knee-jerks were markedly exaggerated. There was no ankle or rectus clonus. Sensation was absolutely normal. There was increased motor and electrical excitability of the quadriceps extensors and the deltoids, otherwise the electrical reactions were normal. The *cranial nerves* were quite normal; there was no nystagmus. The fundi oculorum were normal; the mental condition was quite normal; the heart, the lungs, &c., were also normal. The patient was treated with galvanism to the spine and a mixture containing belladonna and arsenic. On June 26th the movements were as before but he had become somewhat excited. His pupils were moderately dilated and very sluggish to light. He had also developed an erythematous rash on his back. He was taken off the belladonna and put on bromide. On July 2nd the pupils reacted; the movements were as before. His mental condition was normal. On the 5th the patient went out at his own desire *in statu quo*.

I am indebted to Mr. Wilmot, medical officer to the Bradford Royal Infirmary, for permission to publish this case.

Bradford.

NOTE ON A CASE OF UPWARD AND BACKWARD DISLOCATION OF THE CLAVICLE.

By L. Ernest Acomb, M.R.C.S. Eng., L.R.C.P. Lond.,
house surgeon to the middlesex hospital, london, w.

The patient, a spare, well-grown man, 55 years of age, whilst crossing the road was knocked down by a hansom cab. He remembered being struck on the head and was assisted to his feet in a dazed condition and accompanied to his home by a friend. He sustained a scalp wound which bled profusely, but was unaware of any injury to his shoulder until the following morning, when he found that his left shoulder was painful, and in order to relieve the pain somewhat he had to support his elbow. He was able to raise his arm slightly, but this movement caused great pain.

On examination the left shoulder drooped forward and there was a depression in place of the prominence caused by the forward convexity of the clavicle. The articular facet of the acromial process could be *distinctly felt*, while the acromial end of the clavicle *projected* backwards under the skin covering the suprascapular fossa. The distance from the acromial end of the clavicle to the coracoid process measured on the left side four inches and that on the right side three inches. There were some swelling and bruising of the part. The sternal articulation of the clavicle appeared to be in no way affected. Reduction without a general anæsthetic was found to be impossible, the acromial end of the clavicle being apparently entangled amongst fibres of the trapezius. Under chloroform reduction was effected, but the bone could not be retained in the proper *position*.

The patient was admitted into Middlesex Hospital on April 27th, 1906, under the care of Mr. A. Pearce Gould, who, on April 30th, wired the outer end of the bone into position. Mr. Gould made a curved incision so as to enclose the projecting outer end of the clavicle within the concavity of the incision. The end of the bone was found to have separated the fibres of the trapezius and to have become entangled within them. *The bone* was disentangled and holes were bored in the acromion process and the outer end of the clavicle respectively; a soft wire was then passed through, *twisted* tightly, and the ends cut short were battened down. The patient made an uninterrupted recovery and when discharged on May 17th could use the arm well, the movements daily improving. When he returned from the convalescent home three weeks later he could raise his arm as high above his head as on the uninjured side.

The most usual dislocation of the clavicle is at its outer end, with the acromial facet resting on the upper surface of the acromion process. In this case the outer end of the clavicle had passed much further back across the whole length of the acromion and was resting on the spine of the scapula. The whole of the coraco-clavicular ligaments must have been torn across. *I cannot find* a similar degree of displacement recorded by any of the surgical authors to whose works I have access.

I am much indebted to Mr. Gould for allowing me to publish this case and for his help in these notes.

Reviews and Notices of Books.

Physiology of the Nervous System. By J. P. Morat (Lyons). Translated and edited by H. W. Syers, M.A., M.D. Cantab. With 263 illustrations (66 in colours). London: Archibald Constable and Co., Limited. 1906. Pp. 680. Price 31*s.* 6*d.*

The French treatise on physiology by Professor Morat and Professor Doyon is well known to all physiologists in its native garb. The translator has selected the volume dealing with the nervous system and perhaps wisely, for Professor Morat's name first became well known to English physiologists more than two decades ago by the joint work done system the Latin anatomical nomenclature adopted by the Congress held at Basle in 1895 for the purpose of considering the use of Latin in the medical terminology of German-speaking countries. Each page is divided into four columns, the first of which contains the Latin text, while the other three show the corresponding terms in French, English, and Esperanto. The English portion is by no means free from typographical errors or inelegancies. For instance, on p. 1 the nasal spine of the frontal bone appears as the "nanal spine," on p. 3 the word "line" is divided as if it were a dissyllable, and the carotid groove of the sphenoid bone is given as the "carotic groove"; on p. 4 the word "face" is divided like a dissyllable; and on p. 7 the semilunar bone of the carpus is given as the "lunar bone." Again, the radial nerve of the English anatomists is a sensory nerve in the forearm, but the *nerf radial* of French anatomists includes the upper sensory-motor portion of the same nerve. These, however, are minor blemishes in a meritorious production, and are not likely to embarrass English readers.

Lectures on Midwifery for Midwives. By A. B. CALDER, M.B., M.R.C.S., Lecturer on Midwifery to the London County Council and to St. Mary's Midwifery Training School, Fulham. With 153 Illustrations. London: Baillière, Tindall, and Cox. 1906. Demy 8vo. Pp. xii.-274. Price 5*s.* net.—In response to the request of some of his pupils the author has published his lectures on Midwifery for Midwives "just in the words they were delivered to the class." The result is this little book, which contains all that is required to be known by an aspirant for a certificate of the Central Midwives Board. It is a difficult matter to write a book of this kind but Dr. Calder has certainly succeeded exceptionally well and we are not surprised that his pupils should have desired to have such excellent lectures in a permanent form. The author has carefully avoided going into too much detail but has left out nothing of importance. The chapters which we think most admirable are those on infant feeding and asepsis. The difficult subjects of the modification of cow's milk and bottle feeding are very clearly described and the reasons given for the various steps recommended. With the author's remarks on the various patent foods on the market we entirely agree: as he rightly says, "the delusive attractions of most patent foods are the simplicity of their preparation, and their digestibility, and therein lie their dangers; for the enthusiastic mother, when she uses them, usually feeds her child on too concentrated food and in too large quantities; as she discerns the expanding ability of the babe to imbibe them, and the physical results as exhibited in pounds avoirdupois." The rules laid down by the author for the prevention of septic infection (which he summarises in the form of a table) are especially good and would well bear inclusion in many text-books intended for the use of medical students. As he truly says, the midwife should ever remember "to regard the period of labour as the time the patient is undergoing an operation, when wounds are being made which have to be kept aseptic, and the puerperium as the time when these wounds are repaired by being kept surgically clean." On the whole it is one of the best books of its kind which we have read. It is a pity that the illustrations are crowded together on separate sheets and are unworthy of the excellent letterpress.

Heath's Manual of Minor Surgery and Bandaging for the Use of House Surgeons, Dressers, and Junior Practitioners. Thirteenth edition. Revised by BILTON POLLARD, F.R.C.S. Eng., Surgeon to University College Hospital and Teacher of Operative Surgery in University College, London; Member of the Court of Examiners of the Royal College of Surgeons. London: J. and A. Churchill. 1906. Pp. 409. Price 6*s.* net.—What can be said about a book which has reached the thirteenth edition? It must have supplied a want and it must be appreciated by its readers. The only essential for the continuance of a popularity such as this is that the book should be kept fully abreast of the times. Mr. Pollard has in the present edition, as in the one immediately preceding it, brought the work fully up to date without destroying its original characteristics. It will prove as useful as ever for dressers and house surgeons, and many a young practitioner will find the hints given in this book of immense value in his daily work.

Baby: Useful Hints for Busy Mothers. By EDITH L. MAYNARD, Certificated, London Obstetrical Society; late Sanitary Inspector, Sheffield. With an Introductory Note by JOHN ROBERTSON, M.D., B.Sc. Edin., Medical Officer of Health of Birmingham. Bristol: John Wright and Co. 1906. Pp. 31. Price 1*d.*—The ignorance which exists even amongst better-class mothers on the feeding and upbringing of a baby is a most extraordinary thing. The dangerous habits of the lower-class mother in regard to the feeding of her babies are well known, and we are often tempted to wonder whether the ignorance is not sometimes assumed and in reality is merely a cloak for criminal neglect. It is needful, however, not to pass too harsh a judgment on the parents of the unhappy children who suffer so terribly from the ignorance, whether it be assumed or real, of their mothers. In this little pamphlet the author has tried to give a short and trustworthy description of the right way to feed and to rear an infant. It is an endeavour to teach those mothers who, through no fault of their own, adopt methods quite dangerous to the babies for whom they are anxious to do right. It is the unfortunate bottle-fed babies who die and, as Dr. Robertson points out in his preface, in his own district during the summer, over 20 times more bottle-fed babies die than breast-fed ones, from an equal number of babies in each group. Miss Maynard has succeeded in describing in clear and simple language all that a young mother should know about the care and feeding of her baby. The directions are so good and easy to follow that no one should have any difficulty in understanding them and a perusal of this little pamphlet would do much to save the lives of many improperly fed babies. It is just the kind of book to place in the hands of district nurses and midwives for distribution amongst their patients.

A Manual of Veterinary Therapeutics and Pharmacology. Second edition. By E. W. HOARE, F.R.C.V.S. London: Baillière, Tindall, and Cox. Pp. 772. Price 15*s.*—The work has been re-written, and no one comparing it with the first edition could possibly recognise it as an extension of the same work. The first edition, if we recollect aright, was arranged on identically similar lines with a Pharmacology and Therapeutics written for human medical students by Dr. J. Mitchell Bruce; in fact, the two when placed side by side, except for the posology, appeared to emanate from the same pen, so much were they alike in their columns and paragraphs. The present work is modified both in its wording and its arrangement in every direction. The subjects of materia medica and pharmacological action, as far as the specific details of the preparation of the drugs are concerned, have been rather scantily treated, and we fear this will be detrimental to the book from the student's point of view, but it is the veterinary practitioner who will really appreciate the work. The author writes as a practitioner, and if he is superficial when dealing with pharmacological actions he is none the less thorough in his applied therapeutics. The chapters on the care and management of sick animals and on the treatment of numerous diseases are complete from the practical standpoint, and in the appendix are many formulæ and prescriptions that will prove of greatest service to veterinary surgeons.

everybody would hold that borax and salicylic acid are in any sense condiments. Vinegar, again, is an old-fashioned preservative, but what would pickles be without it or with borax added instead? The fact, too, that "modern preservatives" are more potent than the old-fashioned antiseptics constitutes a source of danger. We cannot think that the argument in favour of the use of "modern preservatives" is helped a tittle by stigmatising smoke, salt, vinegar, and so on as preservatives the harmlessness of which may be open to doubt because "they were originally discovered by uncivilised or semi-civilised man."

Dr. Thresh and Dr. Porter's book will be valued also by readers for its excellent chapters on the methods and substances commonly used in the preservation and colouring of foods as well as for the sound directions given for the detection of such preservatives. It is almost needless to add, when the wide experience which both authors have had in dealing with epidemics arising from the consumption of unsound food is recognised, that the chapters on such subjects as ptomaine poisoning, public abattoirs, contaminated shell-fish, watercress, and so on, are full of points of the greatest interest to all those concerned in the protection of the public health. There is, in fact, no more important branch of the public health service than that with which this volume deals, and the subjects are approached from a completely modern point of view.

The Operative Treatment of Fractures. By W. ARBUTHNOT LANE, M.S. Lond., F.R.C.S. Eng., Surgeon to Guy's Hospital, and Senior Surgeon to the Hospital for Sick Children, Great Ormond-street. London: The Medical Publishing Company, Limited. 1905. Pp. 144. Price 7*s.* 6*d.*

No surgeon will deny that some cases do occur in which a fracture has permanently impaired the utility of a limb, even though the broken bone has firmly united, but there will certainly be differences of opinion as to the proportion of cases in which the ultimate result of the ordinary treatment of a fracture is unsatisfactory. Mr. Lane holds that the proportion is large, while most surgeons believe that the percentage of cases is very small. Probably the truth lies between these extremes. It is, however, certain that the introduction of the x rays into surgery has somewhat shaken the complacency with which we were wont to regard the result of the splint treatment of fractures, for skiagrams show us that malplacements are by no means rare. Mr. Lane is strongly in favour of wiring or screwing the bones in all cases likely to prove unsatisfactory, so as to insure an accurate apposition of the fragments. The advantages of the operative method are obvious but its disadvantages, or possible disadvantages, are equally clear. To wire or to screw a simple fracture is to convert it into a compound fracture and the possible septic results of such a conversion include some which are very serious, but the author claims that "if due care be taken and reasonable skill be exercised the risk is practically *nil.*" We doubt if most surgeons will subscribe to this opinion. It is, however, certain that with great care the risk is very small and in some cases it is well worth while to run this risk in order to obtain the benefits of wiring and this work gives a useful account of the methods employed.

The book is printed in a very large type, technically known as "great primer," and in demy quarto size, having only some 200 words on each page. Such type is pleasant to read and forms a marked contrast to the small type so widely used nowadays, but we think that the quarto size is a little unwieldy. It is a pity that no index has been provided.

LIBRARY TABLE.

Guide to Promotion for Non commissioned Officers and Men of the Royal Army Medical Corps, with Appendix on Hints for Young N.C.O.'s on Clerical and Other Duties in Military Hospital. Compiled by Captain S. T. BEGGS M.B. R.U.I., R.A.M.C. (Militia). London: Gale and Polden Pp. 303. Price 3*s.* 6*d.* net.—Captain Beggs hopes tha this guide will fulfil a useful purpose in the corps an induce men to study for promotion. The special feature of the little book are (1) the concise form in which th information is put by questions and answers; (2) the illus trations of surgical instruments and appliances; and (3) th assistance which it is hoped will be derived from th "Appendix" in supplying a guide to young non-commissioned officers, recently promoted, who may have had n experience in routine clerical duties prior to promotion. In preparing the appendix, in the compilation of which the author acknowledges a debt to Sergeant-Major J. Tewkesbury, R.A.M.C., the following points are considered: How to take over charge of a military hospital, the clerical duties carried out by a non-commissioned officer, and th many questions which concern official papers and returns in a military hospital. The body of the book is divided into two parts and addenda. Part I. deals with infantry squad drill, stretcher drill, discipline, duties in barracks on guard and piquet, duties in camp and on the line of march, the duties of ward-orderlies and of wardmaster, the mode of carrying wounded men off the field, the immediate treatment of cases of emergency, the method of regulating the ventilation of wards, and with surgical instruments and appliances. Part II. contains additional information necessary for promotion to sergeant; it deals with transport duties and company drill (the subject-matter of these chapters being supplied by Messrs. Gale and Polden), hand-seat drill, ambulance-wagon drill, the additional duties of wardmaster, and the duties of a steward. In the addenda lists of instruments required for emergency and other important operations are given, as well as a list of the medical and surgical equipment for regimental units. From this *précis* of the contents the scope of this useful work will be seen, and it should be added that the information is given in a straightforward way. The illustrations are supplied from the blocks used by Messrs. Evans and Wormall in illustrating their catalogue of surgical instruments.

A Text-book of Botany. Part I. The Anatomy of Flowering Plants. By M. YATES. London: Whittaker and Co. 1906. Pp. 147. Price 2*s.* 6*d.* net.—This little book has been written primarily to meet the requirements of the author's own pupils in preparing for examination. It will, however, be found useful to anyone who wishes to obtain a practical acquaintance with botany without the aid of oral teaching. The book is of a suitable size for the pocket and is divided into chapters, each dealing with some particular part of a flowering plant. The derivation of the terms used is given and in nearly every case a little sketch (413 in all) helps to make the definitions clear. The arrangement of the chapters is a useful one for reference, and if the book is used as it is intended to be used—namely, to supplement practical work—we can find no fault with it. The danger of such books being used for cramming purposes should not, however, be lost sight of. The list of questions set by various examination syndicates which is given at the end of the book adds to its usefulness, but is suggestive in the direction just indicated.

Nomenclature Anatomique en Quatre Langues. (An Anatomical Vocabulary in Four Languages.) By Dr. PAUL RODET. Paris: Masson et Cie. 1906. Pp. 76. Price 1 franc 50 centimes.—In this well-arranged and useful little book Dr. Rodet has collected the Latin, French, and English equivalents of upwards of 2200 anatomical terms, and English readers of French medical literature will find it excellent for reference when an unfamiliar word of this class presents itself. He has taken as the basis of his

THE LANCET.

LONDON: SATURDAY, AUGUST 25, 1906.

The Meeting of the British Medical Association at Toronto.

IN 1897 the British Medical Association for the first time crossed the sea to hold its annual meeting in Canada, and now, after the lapse of nine years, it is paying a second visit to the same prosperous and important colony. In all parts of the British Empire the year 1897 was rendered memorable by the celebration of Queen VICTORIA'S Diamond Jubilee, and Canada in entertaining two of the best known British scientific associations during that summer did much to promote the feeling of imperial sympathy already evoked. For while Montreal gave a most cordial reception to the British Medical Association, Toronto no less hospitably entertained the British Association for the Advancement of Science. The British Medical Association is now the guest of Toronto, and the kind of reciprocity witnessed in such meetings affords the best possible illustration of the fellow-feeling which exists between the self-governing colonies and the mother country. Medical men cannot, as a rule, allow themselves long holidays, but the prospect of meeting their Canadian brethren, and of seeing something of the country upon which such lofty expectations are now set, has had such attractions that a journey of several thousand miles out and home has been cheerfully undertaken by many fortunate members of our profession.

English visitors are always welcome in Canada and sight-seers, who will find much to interest them, will travel under the pleasantest possible conditions. The climate is one of the healthiest in the world, the language is our own, social usages are quite similar, and money goes a long way, while for the lover of fine scenery there are natural marvels unapproached in the world for splendour and variety. The traveller in Canada will find an immense diversity of mountain and valley, river and lake, forest and prairie, uninhabited wilderness and fertile expanses covered with wheat. The vast chain of lakes with an area of 150,000 square miles, the northern primeval forests, the western Rocky Mountains, Niagara Falls, the Thousand Islands—some of all these at least he will see, and will understand why the Canadian loves his country, and why thoughtful inhabitants of the mother country see in Canadian prosperity such vast promises. The wheat-growing belts of Manitoba and the North-West, which make of Canada the granary of the empire, cover some 80,000 square miles intersected by navigable rivers, and the millions of bushels of grain produced stagger the imagination with their immensity. These are the sights which unroll themselves before the traveller's eye, while he proudly remembers that he has a birth heritage in their glories. For not less important to us than the commodities with which Canada supplies us is the fact that in her we have a vigorous and attached descendant, capable of assisting the motherland in various ways. We have spoken of food only, but the Canadians can turn the ploughshare into the sword and take their place in the battlefield if occasion requires, as the services of the Canadian contingents in the hard-fought fields of the South African war well prove.

Canada in the course of its material progress has been throughout served well medically. The Dominion is well provided with medical schools and there are fine hospitals in the larger towns. For the population of five and a half millions distributed very unequally over the vast area of the Dominion there are medical schools in four provinces, while there is every sign that medical development will follow quickly and proportionately upon the great rise in population now justly anticipated. In the province of Quebec there are four medical schools—comprising Laval University, in the city of Quebec; and Laval University, McGill University, and Bishop's College in Montreal. The medical schools in Toronto were fully described in a series of articles which was commenced in our issue of July 28th, p. 268, and concluded last week, but there are also medical faculties of Dalhousie University at Halifax, Nova Scotia, and of the University of Manitoba at Winnipeg, Manitoba. The oldest of the Canadian medical schools is the medical faculty of McGill University, dating from about 1830, but the University of Toronto has the largest number of medical students. All these educational bodies have the power of granting degrees and all are connected with universities either directly or by affiliation. A considerable proportion of the professors and teachers are men of unquestioned eminence, the courses of study are similar to those in Great Britain with some predominance of laboratory work over formal lectures, and the standard of the examinations for graduation is high; but, nevertheless, the curious anomaly exists that Canadian degrees are not registrable in Great Britain. This state of affairs is due to the fact that in Canada there is no Dominion examining board, but each individual province has its own system of medical registration as well as the legal control of such medical schools as may be in it, an arrangement which is incompatible with the decision of the British General Medical Council not to register colonial qualifications unless granted by universities situated in autonomous provinces. A solution of this difficulty would be a triumph of medical politics and the situation will, we hope, be debated during the meeting whose sittings will have commenced before these pages reach our readers.

The British Medical Association: The Address in Medicine.

SIR JAMES BARR chose a most admirable subject for his Address in Medicine at the meeting of the British Medical Association at Toronto, when he decided to discuss the Circulation viewed from the Periphery. Whether looked at from a physiological, from a pathological, or from a clinical point of view the interest in this theme must be of the first importance, for many theoretical and experimental deductions owe their application in the actual treatment of

JOURNALS AND MAGAZINES.

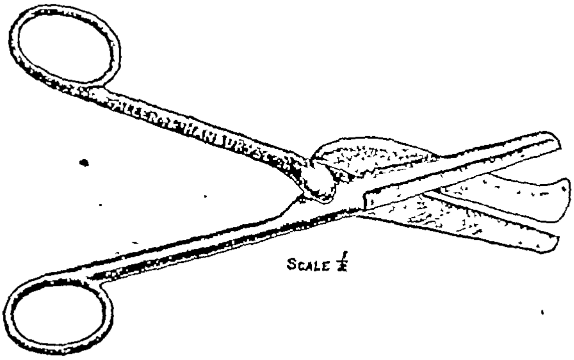
Ophthalmology. Edited, with the aid of a staff, by H. V. WÜRDEMANN, M.D., of Milwaukee. Vol. II., No. 4. July, 1906. Issued quarterly. Price 6*s.* per number or £1 1*s.* per annum. Editorial Office, 105, Grand-avenue, Milwaukee, Wisconsin, and to be obtained from George Keener and Co., 16A, Red Lion-square, London.—The original articles contained in this number are: 1. Ocular Injuries from Glass and Stone, by William H. Sweet, M.D., of Philadelphia. The author shows that notwithstanding the difficulty of obtaining a shadowing of a particle of glass or stone and localising it by means of the Roentgen rays, it may with care be successfully accomplished, and skiagraphs of small fragments of various particles are given as well as drawings showing the relations of the orbital bones to the globe of the eye. 2. Some Observations on Worth's Methods of Treatment of Convergent Squint in Young Children, by Linn Emerson, M.D., of Orange, New Jersey. The author deals exclusively with concomitant-convergent squints, which he regards as due to deficiency or absence of the fusion sense. The principles of treatment he adopts are optical correction; occlusion of the fixing eye; the use of atropine in the fixing eye; training of the fusion sense; and finally operation. 3. A Cure of Convergent Strabismus by Orthoptic Treatment at 20 years of Age, by H. V. Würdemann, M.D. 4. A Secure Looped Single-stitched Advancement Suture with a Consideration of Scleral Anchorage, by Mark D. Stevenson, M.D., of Akron, Ohio. 5. Antipyrin Keratitis, by Professor Dr. Mitsiyasu Inouye, of Tokio, Japan. 6. The Effects of "Full" and "Minimum" Doses of Atropine Sulphate and of Homatropine Hydrobromate, by Lucien Howe, M.D., of Buffalo. To determine the refraction as accurately as is possible at a single visit the author recommends a disc containing $\frac{1}{500}$th or $\frac{1}{150}$th of a grain of atropine sulphate; to learn the condition of the acommodation a disc of $\frac{1}{5000}$th of a grain may be used; to know the refraction without regard to the accommodation about $\frac{1}{50}$th of a grain of homatropine is by far the most convenient. 7. Ophthalmic Subjects in Talmudic Literature by Aaron Brav, M.D.; this is an interesting account of old Jewish terms. 8. Monocular Visible Spasm of the Central Artery of the Retina, with a case, by D. F. Harbridge, M.D., of Philadelphia. The number contains many abstracts from foreign literature, also some reviews and the index of the second volume.

Le Liège. July, 1906. No. 1. *Paris*: 52, Rue Saint-Georges. Price 2 francs.—We have received for notice a copy of this new journal which is edited by Mr. Max Hilbig. The title of the journal is printed on a very thin slab of cork adhering to the paper cover. The journal contains an interesting account of the cork-oak forests of Algeria with illustrations. The advantages of cork bricks and tiles for building purposes is pointed out and it is stated that cork is so resistant that it is not attacked by the bacterium which, under the name of bacillus amylobacter, plays such an important part in the decomposition of vegetable matters. The best corks for bottles, it is stated, are always hand-cut. It is estimated that from 25 to 27 millions of francs' worth of cork are annually transformed into corks for bottles in the whole world. The corking of bottles of all kinds is a matter of importance to the medical profession and we welcome a technical journal devoted to the interests of cork.

New Inventions.

A "SCISSORS SHIELD" FOR CIRCUMCISION.

I VENTURE to bring to the notice of the profession a little instrument for performing the operation of circumcision on very young children, no anæsthetic or ligatures being required. It is, as represented in the accompanying illustration, composed of half the ordinary shield so commonly used, the place of the remaining half being taken by the right blade of the scissors. The whole can be taken to pieces for the purpose of cleansing. I am of the opinion that by its use uniformity of results can be attained. The following are the directions for operating with the "scissors shield," which name exactly describes the instrument:—



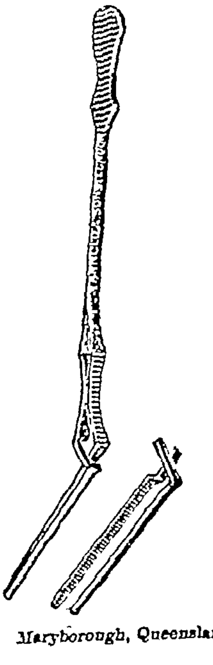
1. The prepuce to the required length is seized by the thumb and forefinger of the left hand and passed obliquely (the blades being separated) through the groove in the scissors shield, the cutting blade being above. 2. The prepuce is now cut off with one movement directed obliquely from below upwards, to avoid the vessels of the frænum. 3. The mucous lining which is now exposed over the glans is treated in a similar manner. 4. The mucous membrane is now further torn in the middle line by the fingers or cut with a scissor right down into the neck of the glans, this being the most important step of the operation. The remains of the mucous membrane is now reflected flatly and evenly downwards and held in position by a narrow slip of lint and "heft band" plaster—i.e., a piece of plaster shaped like an obtuse-angled splint. 5. In very young children anæsthetics or ligatures are not required; of course, this does not apply to older children and adults.

The instrument has been made for me by Messrs. Allen and Hanburys, also by Messrs. Krohne and Seseman.

HENRY DUTCH, M.D. Brux., M.R.C.S. Eng.

Berkeley-street, W.

A UTERINE COTTON-WOOL FORCEPS.



ALL medical men when trying to remove soiled cotton-wool from any of the different varieties of uterine probes must have noticed the difficulty which they have in doing so. For some considerable time I have been using the instrument here illustrated and have found that it easily overcomes that difficulty. I call it a uterine cotton-wool holder or forceps. By pressing the neck of the instrument the blades are separated and a piece of cotton-wool, say, two and a half inches long by two inches broad is placed between them. Then the wool is wound round the blades. To remove the soiled wool separate the blades two or three times by pressing the neck. Then take a piece of clean wool between the first finger and thumb of the left hand and push off the soiled wool. If there is any difficulty in doing so separate the blades again a few times. Messrs. Arnold and Sons of London made the instrument for me.

J. CRAWFORD ROBERTSON, M.D., C.M. Glasg.

Maryborough, Queensland, Australia.

explains many of the phenomena occurring in connexion with the circulatory system in a manner approved by modern science and contains numerous suggestions which will be of value in correlating the clinical aspect of altered blood pressure with physiological considerations.

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The British Medical Association: The Address in Surgery.

THE most interesting subject on which anyone can speak is that about which he knows most, and therefore Sir VICTOR HORSLEY acted wisely in choosing as the subject of his address at Toronto the recent progress of the surgery of the brain. Twenty years have elapsed since Sir VICTOR HORSLEY first brought forward at a meeting of the British Medical Association cases illustrating cerebral surgery, and very striking is the contrast between the state of our knowledge of the surgical aspect of this region of the body at that time and at present. As Sir VICTOR HORSLEY has for many years formed one of the main objects of attacks by antivivisectionists it is clearly nothing more than his due that it should be recognised that very much of the success which has attended the evolution of the surgery of the brain is due to his experiments on animals; in no other way could the progress have been so assured and so great than in that followed by him and the group of physiologists and pathologists associated with cerebral surgery. Even with regard to the anæsthesia for operations on the central nervous system the ultimate choice of one anæsthetic rather than another has been based on experiments on animals. In all cases it has been necessary by observations on human beings to confirm and extend the broad principles thus obtained, but without the laboratory work the difficulties would possibly have been insurmountable.

Too long has it been customary to look upon operative procedures on the brain or spinal cord as a last resource—this may be called the essential message of Sir VICTOR HORSLEY'S address. Months and even years are spent on medicinal treatment, and when those in charge of the case have to confess utter failure, then, and not till then, the surgeon is called in and asked, and expected, to accomplish miracles. What can be hoped from surgery in a case where optic neuritis has lasted for nine or even 13 years? And yet Sir VICTOR HORSLEY has been requested to operate in such cases and to remove tumours which have destroyed vision years before. All, or nearly all, the harmful results of cerebral growths are due to the pressure exerted on neighbouring structures. At first the only effect of this pressure is to interfere with the function of the part compressed, to delay or forbid the transmission of nerve currents, to prevent the due working of nerve centres, or by interference with the circulation of a portion of nerve tissue to put an end to its action. Soon, however, pressure on the nerve tissue leads to atrophy. Such a result will follow a constant pressure in any organ of the body, but it is especially rapid and certain when the compressed tissue is so complex and delicate a structure as that of the central nervous system. Every day that unnecessarily delays the removal of the pressure tends to diminish the possibility of the return of function or to limit the completeness of the recovery. Even when the pressure is of a nature removeable by medicinal means, as in the case of a syphilitic gumma, the medicinal means must be employed early and energetically if good is to result. An immense responsibility rests therefore on those who counsel unnecessary delay in resorting to surgical methods for the relief of cerebral pressure. The medicinal treatment may reasonably ask for a trial before any call is made for surgical aid, and, with the idea of getting some general line of procedure for cases which must offer many general similarities, it has been suggested that surgical interference may be postponed for three months. The delay in the opinion of many is sufficient. It cannot, on the one hand, be looked upon as too short a time, nor can it be urged, on the other hand, that the time has been unduly prolonged. But we think that when three months have run their course no excuse can be offered for further delay, and the assistance of the surgeon should be invited. It must not be imagined that in all cases so long a period should be allowed to elapse before the surgeon is called upon for assistance, for it may be recognised at a much earlier period that medicine can do no more, but where no indications of urgency exist the delay is reasonable. Sir VICTOR HORSLEY, however, feels that he may lay down a definite rule that in no case of optic neuritis (unless of toxic or anæmic origin) should the process be allowed to continue after it has once been diagnosed, for if it be left unrelieved, and blindness results therefrom, a heavy responsibility rests on anyone who failed to advise such a simple proceeding as opening the dura mater.

For operation on the brain there is little that is special in the preparation of the patient, though calcium chloride appears to be of use where much oozing is expected, as in the case of perforating tumours of the skull. As to the anæsthetic the use of morphine hypodermically in conjunction with chloroform has been abandoned, for it has been found that the morphine was harmful both from its effect on the alimentary canal and from its depressing influence on the respiratory centre. Ether is inadmissible, in spite of it being safer than chloroform, because it raises the blood pressure and increases the venosity of the blood, and this occurrence may cause much additional and troublesome hæmorrhage. Chloroform, on the other hand, causes a fall of blood pressure and so less hæmorrhage occurs. It is, however, distinctly more dangerous than ether, while all cases of increased intracranial tension are especially liable to sudden death from paralysis of the respiratory centre. It is therefore essential that some apparatus should be employed by which a definite percentage of chloroform may be given. Sir VICTOR HORSLEY always uses the Vernon-Harcourt apparatus, the merits of which are known to all our readers. A point of great importance in the administration of chloroform in these cases, or indeed of any anæsthetic, is that the depth of narcosis, and therefore the amount of anæsthetic administered, should vary with the sensitiveness of the structures about to be divided. 2 per cent. of chloroform vapour will induce anæsthesia and allow the division of the skin and the reflexion of the scalp flap, for this is the most painful part of the operation, but 1 per cent. will suffice for the removal of the bone, for bone is less disease to our right appreciation of the problems discussed by Sir JAMES BARR. There is a great tendency when dealing with circulatory disorders to adopt therapeutic measures which act on the heart only; drugs are given which increase the cardiac power in order to stimulate the circulation. It is too often forgotten that the heart may be relieved in two ways—either by the administration of drugs acting as a central stimulus, or by reducing the resistance in the peripheral circulation which the heart has to overcome. The latter procedure is as important in many cases as the former, but at any rate until quite modern times it has not received the same attention. Sir JAMES BARR, who may be congratulated upon being a pioneer, points out that writers hitherto on this subject have almost invariably traced the circulation from the centre to the periphery, and it is worthy of notice that although the numerous treatises on diseases of the heart and aorta have received many annual additions with regularity, until recent years a careful study of the peripheral circulation has been largely left to physiologists—the physician's need of such information being insufficiently recognised. It was a happy thought of the lecturer to reverse the usual procedure, and it has resulted in an address of distinct originality.

Sir JAMES BARR refers to many interesting points connected with the functions and structure of the smaller arteries and veins and of the capillaries, and his lecture will serve to remind many of our readers how indefinitely the scope of systemic medicine is now enlarging. In considering the capillary circulation, he duly insists on its importance as the medium through which the interchange of nutritive pabulum and gases takes place between the blood and tissues, while he points out that the exact conditions under which this circulation is carried on have not until recently been fully comprehended; yet knowing their physiological functions we can all see that a careful study of these little tubes is of as much importance as study of the heart itself. It will probably be a new fact to many to learn that, although in very plethoric individuals and in cases of polycythæmia the capillaries of the body are fairly replete, in ordinary subjects, and especially in those of neurotic temperament, perhaps *not* a third of the capillaries are full at any one moment. From the fact, then, that in normal circumstances a sufficient quantity of blood cannot pass through the arterioles to keep the enormous capillary bed full the lateral pressure and the velocity in the capillaries must be ever-varying quantities. Sir JAMES BARR'S observations on these two forces require careful attention in order to appreciate them fully, but his contentions are sound and based on accurate scientific reasoning. From a clinical point of view one fact is particularly important—namely, that the pressure stands in direct relation to the freedom of the inflow and the obstruction to the outflow. To illustrate this point a simple example was taken. In cases of local syncope the lumen of the arterioles supplying the affected district is obliterated and the capillary pressure is reduced to *nil*. If measures are taken to dilate the arterioles, the mass of blood in the capillaries is augmented, the pressure rises, and the fall in the pressure-gradient between the arteries and capillaries becomes more gradual. The velocity of the blood in the capillaries is also considered in a similarly graphic manner. Sir JAMES BARR shows that it depends chiefly on the potential in the arteries—the higher the arterial pressure the greater the velocity in the arterioles and capillaries. As a general rule it may be assumed that high arterial tension drives the blood through the arterioles and capillaries with great velocity. If, however, only the arterioles of a small area, such as the hand, be contracted the general arterial pressure is not affected; the blood travels in the direction of least resistance, the supply to the hand is diminished, and although the capillary pressure is lessened the velocity is not increased. The regulation of the velocity in the capillaries is a matter of considerable clinical importance. When the velocity is reduced to one millimetre or less per second the blood is surcharged with carbonic acid, the skin or organ supplied becoming of a dusky hue. If the capillary velocity be increased this appearance disappears. To give an example: in cases of cardiac failure with or without any obstructive lung disease, there is often cyanosis of the arms and upper parts of the body. In order to relieve this venous condition of the blood, and to assist in restoring the normal respiratory exchange, oxygen gas is frequently administered. Sir JAMES BARR rightly suggests, however, that the correct treatment would be a judicious cardiac tonic, that is to say, the essential requirement is the administration of drugs which *increase* the velocity of the capillary circulation.

Turning to another subject—the resistance offered to the arterial flow and consequently to the heart, Sir JAMES BARR discussed the views held by various investigators as to whether this resistance was due to the viscosity of the blood or whether it was situated in the arterioles or in the capillaries. We agree with him when he maintains that the barrier to the outflow from the heart exists in the small arteries and arterioles which are governed by vaso-motor action. His arguments for upholding this opinion are strong and, to our mind, convincing. The main reason he gives is that there is very little fall in the pressure-gradient from the large to the small arteries, whereas in the very small arteries and in the arterioles, where he maintains that the resistance exists, there is a very great fall in the pressure and an increased velocity. If, says Sir JAMES BARR, the capillaries formed the first line of *resistance*, the fall in the pressure-gradient in the arterioles would be much *more* gradual, and high arterial pressure would be associated with high capillary pressure. As is well known, however, the reverse is the case. We would point out that the fact of the resistance being in the arterioles must be regarded as an important clinical point. In order to relieve a dilated heart, not only must the heart itself be stimulated but drugs must be given which dilate the arterioles so as to lessen the resistance which the heart has to overcome. It is this kind of simple lesson, not dogmatic but reasoned out, for which the busy practitioner is grateful, and for many such dicta we warmly recommend Sir JAMES BARR'S address to the attention of our readers. He has added to the valuable work which has been carried out during recent years by various observers in regard to altered blood pressure, its causes and effects. Some time must elapse before the full significance of these researches can be appreciated, but this *address*

Thus the milk of the rabbit contains 10·4 per cent. of proteid and 2·4 per cent. of ash and the weight of the baby rabbit is doubled in about seven days. The human animal is at the other end of the scale, for human milk shows *only 1·0 per cent. of proteid* and 0·2 per cent. of mineral matter, and accordingly the human baby's weight takes as many as 180 days to double. The kid's weight is doubled in 19 days and goats' milk contains 4·3 per cent. of proteid and 0·8 per cent. of mineral matter. There can be no excuse for mis-stating the composition of goats' milk as appears to have been done in the case quoted by our correspondent, and it is certainly a misrepresentation of fact to state (if it was so stated) that "goats' milk was worse than skimmed milk and did not contain sufficient fat or sugar." As a matter of fact, goats' milk is richer in proteids and mineral salts than genuine cows' milk and contains usually as much sugar and rather more fat. Goats' milk therefore as a substitute for cows' milk or human milk cannot be condemned on the grounds of its chemical composition, but its adaptability for the human infant's needs is another matter.

FLY LIFE AND INFECTIVE DISEASE.

THE fly, like the worm, has its place and function in the economy of nature both for good and for evil. What the worm is to the soil the fly is to the air, exercising a depurative influence by its absorption of effluvia which, directly inhaled, would be mischievous, even fatal, to man. On the other hand, the fly may be the carrier and transmitter of pathogenic organisms which, introduced by puncture or even simple contact into the human subject, are the proximate cause of infective disease. In 1883 Professor Angelo Celli of Rome observed that flies nourished on the typhoid bacillus transmit, by the medium of their fæces, the same malady in all its virulence—an observation amply confirmed just ten years later, in 1898, in the American concentration camps in Cuba during the war. Even prior to this a similar observation, experimentally confirmed, had been made in Hamburg in the case of cholera. Flies, during the necropsy of a victim to that disease, having alighted on the intestine, were inclosed in a glass receptacle so that the air and the movement might desiccate and neutralise the particles of choleraic virus adhering to their wings and extremities, and were thereafter placed in a tube containing liquid gelatine. In 48 hours all the plaques were covered with colonies of the *bacillus virgula*. More recently, in Paris, it was shown that flies are the principal agents in diffusing cholera at short distances, thus explaining the fact that cholera epidemics diminish in intensity during winter when fly life is arrested by the cold. A still more recent study in this field is that of Professor Saverio Santori of the bacteriological laboratory of the Roman commune, by which he demonstrates the fly as causing the dissemination of "infective intestinal maladies," *particularly* the summer gastro-enteritis of children in its acute form. Examining the statistics of the Italian death-rate, he found that while in the last 20 years well-*nigh all infective* diseases are on the wane some, and these the intestinal, show little or no tendency to decrease. Inferring that these ailments must be propagated by other than the usual agents, against which we neglect to guard ourselves, Professor Santori bethought him of the flies. He thereupon made a study of the "flora bacterica" contained in their digestive tube, on the tracks they left on the places over which they crawled, and on all their corporeal superficies, taking special care that the said flies came from the most frequented localities, especially from the neighbourhood of market places and hospitals. The results were surprising even to himself. He found that on the walking apparatus, the wings, the proboscides, and, in general, all over the bodies of the flies there were pathogen bacilli not only in vast quantities but of the most var forms, the latter observation seeming natural enoug when we think of the infinity of soiled substances up which the fly alights. At the same time, this variety o form in the bacilli was much less in the digestive tube one form so preponderating as to make all the othe practically non-existent. Professor Santori, in fact, fr cultures derived from flies frequenting a Roman mark place succeeded in isolating a bacillus which under th microscope appeared mobile, short and stunted, its characteristics, morphological, cultural, and biological, and pathological features corresponding exactly to that "speci micro-organismo" which Dr. G. Volpino described so months ago in the "Archivio per le Scienze Mediche" as "pathogenic agent" of the "infezioni viscerali" affect infants in summer. The importance of this identification manifest. It may explain the enormous diffusion of th gastro-intestinal malady, particularly in the summer, and also throws light on the fact that in these later years malady, unlike other infective diseases, shows little or signs of decrease. The practical, hygienic, corollary arising is, according to Professor Santori, to take measures for lessening in our habitations the number of flies and for the prompt and thorough removal the soiled or putrescent substances from which these fl transport and diffuse, in myriads, the pathogenic germs.

ŒSOPHAGEAL SYMPTOMS IN AORTIC ANEURYSM.

AT a meeting of the Société Médicale des Hôpitaux Paris held on May 4th M. Edgard Hirtz and M. H Lemaire reported an important case of aortic an with œsophageal symptoms. Rupture of an aortic aneury into the digestive tract is rare. In a period of 72 142 cases of ruptured aneurysm were reported to th Société Anatomique of Paris. In 79 of these ru occurred into the air passages and in only six into digestive tract, once into the duodenum, once into stomach, and four times into the œsophagus. A man, 55 years, was admitted into hospital on March 3rd, 1905. could not be ascertained whether he had had syphilis or no For six months he had suffered from digestive trouble At the beginning there was a little diarrhœa, but the last few weeks this had given place to tion. For two months vomiting had followed nearly meal. At first the vomiting occurred about an hour a meals, then it occurred earlier, and finally it took the f of regurgitation. After taking a few mouthfuls of food patient had to get up in order to eject what he h swallowed. This always occurred in the case of liquids b solids were often retained. Deglutition was not painful did not appear to be difficult. For four months the patie had been losing flesh and strength. On admission he l cachectic and the conjunctivæ and face had a sub-icter tinge. There was myosis without inequality of pupils. the upper part of the epigastrium some deep and lumps were felt. On taking a glass of milk the patie vomited it after some seconds and in the meantime abunda salivation occurred. The urine was increased in q and contained a trace of albumin. The area of car dulness was increased, especially to the left. The a beat was in the fifth space outside the nipple Auscultation showed a "*bruit de galop*" on the left and a resounding second sound at the base. The arteri were atheromatous; the radial and femoral pulses were equal. Abundant salivation always followed the taking of food but occurred at no other time. The patient complained of great thirst which he could not quench. The existence of painl œsophageal vomiting with abundant salivation led to th sensitive. The dura mater has a fair nerve-supply from the trigeminal, and when the dura mater is divided a slightly deeper anæsthesia is needed. That accomplished however, less than 0·5 per cent. will be amply sufficient for most operations on the brain substance, for the encephalon is for the most part little sensitive. Sometimes, indeed, the chloroform may be entirely cut off for 10 or 15 minutes, and in one case Sir VICTOR HORSLEY was able to operate for 20 minutes without chloroform on a child with a cerebellar tumour.

In all intracranial operations it is of the first importance to arrest hæmorrhage, but the oft-tried expedient of tying a main artery such as a carotid does not meet with Sir VICTOR HORSLEY'S approval. For the capillary and arteriole oozing he finds nothing better than hot irrigation, and for this purpose the temperature of the lotion should not be allowed to fall below 110° F., while it should not exceed 115°. Another expedient of value in the arrest of venous and capillary oozing is the inhalation of oxygen, for this lowers immediately the pressure in the veins, the bleeding ceasing rapidly as the dark purple of the oozing blood changes to bright scarlet. Much of the danger from shock in these operations can be avoided by dividing the operation into two stages with an interval of some five days; for it is certain that it is the opening of the skull which causes most shock by producing general depression of nerve energy and alteration in the circulation. If we may judge by statistics, the danger in these operations varies greatly with the region involved, most deaths occurring when the cerebellar region is dealt with and least when the motor area is affected. It is, moreover, clear that in operations designed to remove an excess of intracranial tension shock is least fatal when, a correct diagnosis having been made, the skull has been opened immediately over the affected part, and the tumour has been easily removed. Conversely when an incorrect diagnosis has been made and the skull has been opened at a distance from the tumour, which was therefore not removed, a much higher rate of mortality has occurred.

Of the danger of sepsis in operations on the contents of the skull no difference of opinion can exist, but especial precautions should be taken in these cases, and Sir VICTOR HORSLEY points out that a weak antiseptic lotion is desirable for the irrigation fluid; that the subsequent dressing should be antiseptic (some mercurial salt being employed) and not merely aseptic; and lastly, that drainage should be employed as little as possible, for every drain forms a probable channel for the admission of germs. It is important to displace as slightly as possible the cerebral tissues, for even if they have not been visibly damaged permanent harm appears to result from displacing portions of the brain; and all pressure exerted on brain substance, as in raising the frontal lobe, must be of the utmost gentleness and applied slowly. It has been suggested that a lateral lobe of the cerebellum may be removed without danger for the purpose of reaching deeply seated tumours, and so far as experience goes very little harm seems to result, but it is an unnecessary mutilation and should therefore be avoided, even though we are unable to trace to it any harmful results. Finally, in many cases it appears to be sufficient for removing the effects of pressure to open the skull, though it is generally necessary to divide the dura mater also, and this may be effective in relieving symptoms even though it may not be possible to remove the tumour causing the increased pressure. In several cases Sir VICTOR HORSLEY has laid bare gliomata and having found them inoperable he has closed the wound. From the date of the operation the symptoms have steadily diminished and ultimately disappeared. Without venturing to suggest any adequate explanation of the facts, it cannot be doubted that complete or almost complete recovery does follow in many of these cases.

The conclusions to be drawn are that in the last 20 years great progress has been made in this the youngest, or almost the youngest, branch of surgery; we have learned to avoid or to counteract many of the dangers which beset the path of the operator on the brain and the field of utility has been widely extended. Much has, indeed, been done, much still remains to do, and as in the past no small share of the achievements already gained are due to Sir VICTOR HORSLEY, so in the future we may with confidence expect that he will be one of our forerunners along this most difficult yet most encouraging branch of surgery.

Annotations.

"Ne quid nimis."

GOATS' MILK FOR INFANTS.

IN a letter which appears in our correspondence columns this week an interesting point is raised by the writer in regard to the suitability of goats' milk for infant feeding. There is evidently a wide diversity of opinion on this question judging from the totally opposite views taken by different authorities on dietetics in general. One writer, indeed, on one page of his book regards goats' milk with favour in infant feeding, while on another page he refers to its indigestibility. Thus, he says, "it [i.e., goats' milk] is the most highly nutritious of these milks but it is the least digestible." In the same book it is written in another place: "The reason why the milk of the ass and even that of the goat will agree with the human infant when cow's milk disagrees would appear to be owing to their different manner of clotting when they come into contact with the gastric juice. Cow's milk has a tendency to coagulate in the infant's stomach into large, firm, cheese-like masses which are apt to cause much gastro intestinal irritation, whereas ass's and goat's milk form a loose flocculent curd like human milk." Another authority writes: "Goats' milk is a strong milk, stronger even than cows', and in no way suited for use in infancy," and another that "the coagulation [of goats' milk] obtained by acid or rennet is more solid and is harder than that from cow's milk." As to the chemical composition of goats' milk in its relation to human or cows' milk there ought not to be, of course, two opinions and yet one authority writes, "The milk of the goat, as a rule, contains more cream than that of the cow and rather less albuminous matter," while another says, "goats' milk is richer in albuminates and fats than human milk and even than cows' milk." The latter writer is correct judging from the average figures given in a number of analyses by various authoritative observers. The composition of a milk would appear to depend upon the rate of growth of the animal for which it is intended, and the variations occur chiefly in regard to the proteids and mineral constituents. Heubner, for instance, showed that as the proportion together of proteid and mineral matter increased in milk, so the time taken to double the weight of the animal was diminished.

physician who has to forecast chances of life, and so on. The question of ultimate prognosis is a difficult one, and as Dr. Fox remarks, many years' experience will be needful in order to decide with certainty whether these cases eventually become the subject of progressive disease. The responsibilities of examiners for life insurance in this matter are considerable.

KING EDWARD VII. SANATORIUM.

THE King Edward VII. Sanatorium, which has now been open some two months, is, we are glad to know, in satisfactory working order, as many suitable cases being under charge as has been thought prudent to commence with. But there appears to be some doubt both among the members of the medical profession and of the general public as to the class of cases eligible for admission to this institution. We are requested to state that by the wish of His Majesty the King the sanatorium is primarily intended for the accommodation of those persons of slender means among the educated classes who are suffering from early pulmonary tuberculosis, and who are unable to pay the charges of private sanatoriums. For such patients 86 beds are reserved at a charge of two guineas per week, both sexes being admitted in equal numbers. It is also the King's wish that those persons of larger means who can afford to pay for treatment should not be entirely excluded from the advantages to be derived from the institution, and 14 beds have accordingly been reserved for them, for which a charge of eight guineas a week is made.

COEXISTENCE OF DISEASES.

WE have been asked by an Australian correspondent whether any especial effect is produced on patients suffering from malignant disease or tuberculosis by the specific infectious diseases, such as typhoid fever, measles, and small-pox. Patients the subject of malignant disease are usually at an age when acute specific fevers are uncommon and we are not aware that any statistics on the subject exist. As a matter of interest, however, we may refer to the supposed effect of erysipelas on sarcoma. Cases have been recorded in which a patient suffering from sarcoma has been attacked with erysipelas, with the result that the tumour disappeared. Such instances are extremely rare and may perhaps be attributed to mere coincidence. Nevertheless, observers were led to attempt to treat sarcoma by injections of the products of the pathogenic organism of erysipelas. Coley used a fluid containing the combined toxins of the streptococcus, of the bacillus erysipelatis, and of the micrococcus prodigiosus. Fehleisen also tried the inoculation of erysipelas. The effect of both these forms of treatment seemed to produce a local and not a general modification. The result of an infectious disease occurring in a tuberculous subject does not essentially differ from that found when a healthy subject is attacked, except that in the *former* the powers of resistance are less and not infrequently an intercurrent affection is so badly borne as to threaten seriously the patient's life. Particularly is this the case when a patient suffering from pulmonary tuberculosis becomes infected with influenza or pneumonia. That two or more infectious diseases may coexist in the same individual is generally recognised, and clinical experience would tend to show that the presence of one disease in the body increases the liability to the infection of another. We are not aware, however, that tuberculous subjects are more susceptible to infectious diseases than are healthy people. In this connexion Dr. F. F. Caiger's statistics[1] in regard to various infectious fevers attacking patients already suffering from scarlet fever are interesting, but, as he himself states, cannot be taken as an accurate expression of the proportionate liability to coexistence. The diseases most frequently complicating scarlet fever are diphtheria, chicken-pox, and measles, but care must be taken not to confuse the exudation frequently seen in the throat in scarlet fever with diphtheritic membrane. The subject of mixed infections is an interesting one and merits more attention than has hitherto been accorded to it.

A BAD CASE OF OVERLYING.

AT a recent inquest at Bermondsey on the body of a child 12 days old the following story was told. Ten days after the child's birth the parents celebrated the event by holding a "sing-song," at which they both got drunk. On the following morning, or on the morning after that, a neighbour heard children crying and going into the room found the parents in a drunken sleep with the infant and three other children in the bed with them. The neighbour released one of the children upon whom the mother was lying and left. Later she heard that when the parents had roused themselves from their drunken sleep they had found the infant dead. The jury in this case returned a verdict of accidental death and requested the coroner to censure the parents. That they were greatly impressed by the coroner's censure or deeply grieved by the loss of their child seems improbable. They are rid of the responsibility and expense of bringing up their offspring, and in the course of the year other fathers and mothers will act as they did—get drunk and smother a baby—with no further result than having to attend an inquest and listen to a reproof administered by the coroner. With all respect for what may be done by instruction and admonition it will occur to many that the indictment of a few such parents for manslaughter, with a stiff sentence of imprisonment upon conviction, might bring about the saving of lives. It is difficult to believe that facts such as those mentioned above do not constitute the crime of manslaughter or that a jury before whom they were proved would refuse to find a verdict of guilty from any sympathy with the accused.

RUPTURE OF THE SPLEEN IN A CASE OF STRYCHNINE POISONING IN A MALARIAL SUBJECT.

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KING EDWARD VII. SANATORIUM.

THE King Edward VII. Sanatorium, which has now been open some two months, is, we are glad to know, in satisfactory working order, as many suitable cases being under charge as has been thought prudent to commence with. But there appears to be some doubt both among the members of the medical profession and of the general public as to the class of cases eligible for admission to this institution. We are requested to state that by the wish of His Majesty the King the sanatorium is primarily intended for the accommodation of those persons of slender means among the educated classes who are suffering from early pulmonary tuberculosis, and who are unable to pay the charges of private sanatoriums. For such patients 86 beds are reserved at a charge of two guineas per week, both sexes being admitted in equal numbers. It is also the King's wish that those persons of larger means who can afford to pay for treatment should not be entirely excluded from the advantages to be derived from the institution, and 14 beds have accordingly been reserved for them, for which a charge of eight guineas a week is made.

COEXISTENCE OF DISEASES.

WE have been asked by an Australian correspondent whether any especial effect is produced on patients suffering from malignant disease or tuberculosis by the specific infectious diseases, such as typhoid fever, measles, and small-pox. Patients the subject of malignant disease are usually at an age when acute specific fevers are uncommon and we are not aware that any statistics on the subject exist. As a matter of interest, however, we may refer to the supposed effect of erysipelas on sarcoma. Cases have been recorded in which a patient suffering from sarcoma has been attacked with erysipelas, with the result that the tumour disappeared. Such instances are extremely rare and may perhaps be attributed to mere coincidence. Nevertheless, observers were led to attempt to treat sarcoma by injections of the products of the pathogenic organism of erysipelas. Coley used a fluid containing the combined toxins of the streptococcus, of the bacillus erysipelatis, and of the micrococcus prodigiosus. Fehleisen also tried the inoculation of erysipelas. The effect of both these forms of treatment seemed to produce a local and not a general modification. The result of an infectious disease occurring in a tuberculous subject does not essentially differ from that found when a healthy subject is attacked, except that in the former the powers of resistance are less and not infrequently an intercurrent affection is so badly borne as to threaten seriously the patient's life. Particularly is this the case when a patient suffering from pulmonary tuberculosis becomes infected with influenza or pneumonia. That two or more infectious diseases may coexist in the same individual is generally recognised, and clinical experience would tend to show that the presence of one disease in the body increases the liability to the infection of another. We are not aware, however, that tuberculous subjects are more susceptible to infectious diseases than are healthy people. In this connexion Dr. F. F. Caiger's statistics[1] in regard to various infectious fevers attacking patients already suffering from scarlet fever are interesting, but, as he himself states, cannot be taken as an accurate expression of the proportionate liability to coexistence. The diseases most frequently complicating scarlet fever are diphtheria, chicken-pox, and measles, but care must be taken not to confuse the exudation frequently seen in the throat in scarlet fever with diphtheritic membrane. The subject of mixed infections is an interesting one and merits more attention than has hitherto been accorded to it.

A BAD CASE OF OVERLYING.

AT a recent inquest at Bermondsey on the body of a child 12 days old the following story was told. Ten days after the child's birth the parents celebrated the event by holding a "sing-song," at which they both got drunk. On the following morning, or on the morning after that, a neighbour heard children crying and going into the room found the parents in a drunken sleep with the infant and three other children in the bed with them. The neighbour released one of the children upon whom the mother was lying and left. Later she heard that when the parents had roused themselves from their drunken sleep they had found the infant dead. The jury in this case returned a verdict of accidental death and requested the coroner to censure the parents. That they were greatly impressed by the coroner's censure or deeply grieved by the loss of their child seems improbable. They are rid of the responsibility and expense of bringing up their offspring, and in the course of the year other fathers and mothers will act as they did—get drunk and smother a baby—with no further result than having to attend an inquest and listen to a reproof administered by the coroner. With all respect for what may be done by instruction and admonition it will occur to many that the indictment of a few such parents for manslaughter, with a stiff sentence of imprisonment upon conviction, might bring about the saving of lives. It is difficult to believe that facts such as those mentioned above do not constitute the crime of manslaughter or that a jury before whom they were proved would refuse to find a verdict of guilty from any sympathy with the accused.

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HOSPITAL ABUSE AND SUBSCRIBERS' LETTERS.

THE system of issuing letters of recommendation to the subscribers to a hospital and admitting for treatment only patients whom they recommend has been weighed in the balance and pretty generally found wanting. Few, if any, of our London general hospitals carry out the method with any approach to strictness, and even at the special institutions there are signs that the day of such letters is passing. In truth, as generally worked the system is indefensible. Yet if it were carried out ideally it would possess at least one merit as a check on abuse of the charities concerned by those able to pay for medical attendance. In a letter to the *Daily Mail* the Rev. Richard Free, vicar of St. Clement's, Fulham, suggests that no applicant ought to receive a hospital letter unless he bring a recommendation from the medical man who has been attending him, or has at least given notice to his medical man that he intends applying for hospital treatment. The suggestion is certainly reasonable, though it does not apply to any applicant who has not already received medical attendance. Especially desirable is it that those who have letters to distribute should make inquiries as to the circumstances of applicants and their ability to pay for treatment at home. But we fear that there is little hope of any radical alteration in the habits of subscribers to hospitals, the vast majority of whom clearly think that when they have paid their subscription and received their letters they are called upon to take no further trouble as almoners of their own charity. Consequently, as there is little chance of the letter system being mended, we can only hope that it may be ended soon at all hospitals and replaced by some other arrangement which will supply the safeguards against abuse which are so clearly necessary.

NEOFORMANS VACCINE FOR MALIGNANT GROWTHS.

THE latest phase in the treatment of malignant growths is the employment of neoformans vaccine. Doyen of Paris some time ago described a micrococcus neoformans in new growths, especially in malignant new growths. He also employed a serum prepared from this micrococcus for the treatment of carcinomata, but although he himself claimed to have obtained some improvement from its use in certain cases others who followed his method of using the serum were unable to endorse his claims. A few months ago we published in THE LANCET[1] an account, by Dr. C. Jacobs and Dr. Victor Geets of Brussels, of the employment of a vaccine prepared also from the micrococcus neoformans, and cases were detailed in some of which marked improvement had occurred. In the June number of the *Journal of Laryngology, Rhinology, and Otology* appeared an account of a very interesting case under the care of Dr. R. H. Scanes Spicer at St. Mary's Hospital, in which a vaccine of the micrococcus neoformans was employed in the treatment of an inoperable carcinoma of the tongue and pharynx. Sir A. E. Wright directed the use of the vaccine and contributed a note on the method of treatment. The patient was a man, aged 75 years, and he was affected with a tumour of the left tonsil, the pillars of the fauces, the side of the tongue, and part of the pharynx. Large doses of potassium iodide had no effect and it was agreed by all who saw the case that it was malignant, and this diagnosis was confirmed by the microscope, for histologically the growth was found to be a spheroidal-celled carcinoma. A vaccine prepared from the micrococcus neoformans was then employed. The injections were controlled by estimations of the opsonic reaction of the blood. Improvement commenced at once, the mass visible in the fauces greatly diminished, the ulcerated surface lessened in extent, fœtor ceased, and pain and dysphagia disappeared. Most of the enlarged cervical glands subsided but one small hard gland remained. The total improvement was marvellous, not only in the local condition but also in the patient's general health. No other treatment was employed. The result was in no way claimed as a cure, but as very definite improvement followed the treatment it is at least worthy of an extended trial. The treatment has been employed by Sir A. E. Wright in four other cases; of these two have died, one is quite stationary, and the other shows marked signs of improvement. The micrococcus neoformans can certainly be obtained from a large number of tumours, and as a vaccine prepared from it appears to have a definite action on malignant growths we are justified in thinking that the micrococcus neoformans is at least one factor in the production of tumours. The micrococcus neoformans resembles closely a staphylococcus, but it differs from the latter in several respects. It gives at first very sparing cultures on agar, it grows in short bifurcating chains, it is agglutinated by normal human serum, even when this has been diluted 200 times, and lastly, a blood possessing a high opsonic power with respect to the micrococcus neoformans may possess a low opsonic index with respect to the staphylococcus.

THE TRANSMISSIBILITY OF TUBERCULOSIS BY CASEIN IN PREPARED MILK FOODS.

THE researches of Dr. Calmette, demonstrating the virulence of milk of tuberculous origin even after boiling or sterilisation, have led M. Marcel Guédras to investigate the dried milk foods of commerce in order to ascertain whether they also are capable of transmitting tuberculosis, and his results are recorded in the *Comptes Rendus* of June 25th. M. Guédras took a quantity of milk from an infected source and subjected it to the ordinary industrial method of treatment for the production of casein. The milk was first passed through a centrifugal separator, the casein was precipitated by an acid, redissolved in alkali, again precipitated, and lastly desiccated at a low temperature. Guinea-pigs fed with a solution of casein prepared in this way succumbed in 37 or 39 days, a similar result to that obtained by Dr. Calmette with sterilised tuberculous milk. It is clear therefore that the tubercle bacilli survive the various manipulations which the milk and casein undergo. It is well that the attention of hygienists should be called to the danger that may lurk in the ordinary dried milk foods of commerce. They are largely used by invalids and children on account of their high nutritive value, due chiefly to casein, but the fact that the processes through which they have passed do not destroy any tubercle bacilli that may be present renders it desirable that special care should be taken in employing only the milk of healthy cows. As regards the method of preparation, it is generally considered that the low temperature method of desiccation yields a product more nearly resembling the effort or an attack of coughing would produce contraction of the abdominal muscles and pressure on the organ sufficient to cause rupture. Rupture of an apparently normal spleen as a result of muscular contraction has been recorded. Plainchant has reported the case of a woman, not suffering from malarial fever, who died during an attack of epilepsy.[1] At the necropsy a rent was found in the fissure of the spleen and there were 250 grammes of blood in the cavity of the pelvis. If convulsions can cause rupture of an apparently normal spleen they could much more easily produce rupture of the malarial spleen. When the violent character of the convulsions produced by strychnine is considered the possibility of their causing rupture of the spleen is evident. In the present case there seems to be no doubt that they were the cause of the rupture.

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[1] THE LANCET, April 7th, 1906, p. 984.

A PUBLIC SLAUGHTER-HOUSE FOR THE CITY OF LONDON.

WE congratulate the Cattle Markets Committee of the Court of Common Council upon its report recommending the abolition of the private slaughter-houses attached to the Metropolitan Cattle Market and the construction in their stead of a public slaughter-house. In view of the present agitation on this subject we are not surprised at the favourable reception given to this report, and there is every reason to anticipate that the City will endeavour to be the first among the many metropolitan governing bodies to create a public abattoir. So far so good. Unfortunately the report printed, and the plan of the proposed slaughter-house which accompanies this document, give so few details that it is impossible to form an opinion as to the plan of construction recommended. It is briefly stated that the public slaughter-house for cattle and sheep will be divided into ten chambers, measuring 25 feet by 26 feet, and it is stated that "this system will enable a separate chamber to be allocated to existing tenants whose trade would appear to justify exclusive accommodation and who would be prepared to pay a 'head charge' on the animals slaughtered, with a guarantee of a minimum number per annum to be paid for. One or more chambers would be reserved for public slaughtering, the whole building being under the control of the official staff." The above proposal still bears the stamp of old errors and conceptions which we must endeavour to obliterate. It would be better to make one large hall instead of ten chambers. There is no need of exclusive accommodation unless it be to practise those tricks of trade which it is so necessary to prevent. It is all very well to say that the official staff will be in control, but how can the members of the staff see through the ten partition walls of the ten chambers? We are pleased to notice on the plan that there is a separate building with a destructor for diseased meat, but no mention is made of a separate building for the preparing of tripe and the cleaning out of intestines, yet these things represent one of the most difficult parts of the problem. But we welcome with pleasure the broad fact that the principle of a municipal slaughter-house is accepted, and that the necessity of abolishing private slaughter-houses is recognised.

MALARIA IN THE FEDERATED MALAY STATES.

IN various districts where malarial fever has caused much loss of life successful results have been obtained by the adoption of modern sanitary measures based on Major R Ross's plan for the destruction of mosquitoes. In THE LANCET of May 14th, 1904, p. 1372, we drew attention to the vast improvement that had been brought about in Ismailia, Egypt. Writing in the *Times* of August 7th of this year, Dr. Hamilton Wright gives a brief account of the measures adopted at Port Swettenham in the Federated Malay States. This port was designed by the Government of these States to replace that of Klang on the upper tidal reach of the river of the same name. Port Swettenham was jungle-covered, flooded daily by tides, and incident to an average of about 100 inches of rainfall a year. Dr. Wright had shown that the district was a pest-centre of the worst forms of malaria. On the formal opening of the port Klang was abandoned and the river closed to sea-going vessels. Severe malaria immediately broke out amongst the officials and coolies employed on the railway and shipping. A commission was at once appointed, composed of medical men and railway and works officials, and was instructed to devise measures for the suppression of malaria and for the general sanitary improvement of the port. The recommendations of the commission involved an outlay of from £10,000 to £12,000. It is to the great credit of the Government that without any hesitation it accepted these recommendations. The new port was dyked, drained, levelled, and cleared. Since these sanitary measures were initiated there has been scarcely a case of malaria at the port, and from being an unhealthy, shunned swamp the port is now sought by officials as a desirable billet. We cordially support Dr. Wright when he says that such results as this, and as those achieved at Ismailia, ought to be compelling examples to those who still doubt the findings of science in regard to malaria and other tropical diseases. Major Ross, Sir Patrick Manson, and others have been pioneers in the "antimalarial campaign," and if their efforts are supported by the Governments and local authorities in those districts in which malaria is prevalent the saving of human life and the advancement of commerce will follow.

STERILE CASEOUS MATTER IN THE TREATMENT OF TUBERCULOUS DISEASE.

IN this issue we publish a "preliminary paper" by Dr. P. Paterson on the effect produced on tuberculous lesions by the injection of some of the products of the tubercle bacillus as elaborated in the body. Numerous attempts have been made by competent investigators to separate the antitoxin of tuberculosis or to obtain from cultures of the pathogenic bacillus in a direct or an indirect manner a substance which will cure the disease in the human subject. Hitherto, unfortunately, these efforts have not met with generally recognised success. There is every reason to hope, however, that eventually the much-wished-for result will be accomplished. Dr. Paterson in his investigations starts from the fact that tubercle bacilli can easily be found in the walls of tuberculous abscesses but not in the contents. The organisms may be so few that inoculation experiments may be necessary to demonstrate their presence. As the conditions in the interior of such abscesses are apparently favourable to growth, and yet the bacilli do not increase but actually diminish in numbers, Dr. Paterson argues that there must be some substance in the contents which is inimical to the bacilli; and he further suggests that as the fluids are being constantly renewed presumably this deleterious material is in the encapsulated solids. These deductions are certainly well founded and Dr. Paterson has acted energetically on them. He experienced difficulty in finding a satisfactory process by which the chemical constitution of the solids should be as little changed as possible and yet the living bacilli present be destroyed, but eventually cold applied intermittently appeared to produce the desired result. He proved that if tuberculous pus be kept in a refrigerator for five or six months, but allowed to thaw frequently during that time, the pus would not induce tuberculosis when injected into guinea-pigs. The serum from the pus was then drawn off and the sediment carefully washed so as to remove sound in theory; but they who know the worthy Baronet, who is as innocent of all extra-professional information as Roderick Macleod, will readily acquit him of having ever digressed into a disquisition connected with literature or taste. The fact is, that the passage in question was an interpolation of our reporter, who, in garnishing the worthy Baronet's lecture with this somewhat unjustifiable piece of *fioriture*, little imagined that he was laying a trap to catch a Pure.

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[1] Archives Générales de Médecine, 4 série, tome xvi., p. 504, 1848.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On the Sanitary Circumstances and Administration of the Rural District of Pocklington, *by* Dr. L. W. DARRA MAIR.[1]—Many of the reports lately issued from the medical department of the Local Government Board afford evidence of the unsatisfactory manner in which rural district councils often perform their duties as sanitary authorities. The district of Pocklington in the East Riding of Yorkshire, which includes the town of Market Weighton and a large agricultural area in its vicinity, appears to be no exception to the rule. Sanitary government in this district, or what there is of it, is exercised by a rural district council which consists of 49 members who are also Poor-law guardians. The council meets in intervals of Poor-law business and has no committees for public health or sanitary purposes. The duties of sanitary inspector or inspector of nuisances are intrusted to two surveyors of highways who give nearly all their time to their surveyor's work. These officers Dr. Mair found not to be properly informed of elementary matters affecting the public health of the district; the inspector acting in Market Weighton, for example, was ignorant of the extent to which houses in that town are served by the public water-supply or are dependent on private wells, while the same officer protested against being required to give any assistance to the medical officer of health in dealing with cases of small-pox. The district is divided between two medical officers of health, an arrangement usually unsatisfactory and in this case attended by special drawbacks. Neither of the two surveyor-inspectors has an area corresponding to that of a medical officer, while the effect of the subdivision is that neither medical officer receives sufficient salary to enable him to devote adequate time to the work. The district council's meetings are not attended by either, and the inspectors who do attend are not in a position to give useful advice. It is not surprising in these circumstances that the council, without consulting either medical officer, put up a small-pox hospital which no one could use, or that money spent for "sanitary" purposes has habitually been expended to little advantage. Dr. Mair, in reviewing the situation, concludes that "it will seem to most people, and rightly, in my judgment, that the sanitary administration of this district in its present condition constitutes an actual danger to the inhabitants." He shows that many of the water supplies of the place are unsafe, and that in consequence water-borne outbreaks of enteric fever have occurred from time to time in different localities, most recently in Shipton. "Examination of the records of the council show that during the past few years many samples of drinking water have yielded such bad results on analysis that the analyst has described them in such terms as 'filthy,' or 'enormously' polluted, a 'moderately dilute solution of sewage,' and so forth." Certain villages are in need of a system of public scavenging. Cowsheds are often in great need of supervision, as also is the character of the water used for washing milk utensils. In one instance serious drainage defects were discovered at a cowshed as a result of the occurrence of enteric fever on the adjoining premises. Dr. Mair found three years afterwards that an order of the council to remedy these defects had not been complied with.

On a Re-inspection of the Durham Rural District, *by* Dr. H. TIMBRELL BULSTRODE.[2]—This report relates to an important colliery district which was inspected in 1905 by Dr. R. A. Farrar, who reported to the Local Government Board on its sanitary conditions. As the district council took exception to this report, and disputed some of the statements which it contained, the Local Government Board took a practical, though somewhat unusual, course and sent a second inspector to inquire into the matters in dispute. As a result different parts of Durham rural district have been investigated by a party consisting of two inspectors of the Local Government Board (Dr. Bulstrode and Dr. Farrar), the county medical officer of health (Dr. T. E. Hill), and various members and officers of the district council. Dr. Bulstrode shows that the result of such thorough investigation was to emphasise the importance of the shortcomings of the district which had previously been pointed out. It was satisfactory to find that certain of the defects to which Dr. Farrar drew attention had already been remedied, and after the trouble which has now been taken by the supervising authorities to show this district council what is at fault it may be expected that further and substantial improvement will result. One of the most striking features of colliery districts in the north of England, specially noted by Dr. Bulstrode in the present case, is the contrast in the matter of cleanliness and general well-being between different villages the inhabitants of which are of the same class and occupation and receive the same wages. The character of the house accommodation is the dominant factor in the matter. Hardly less important is the condition of the roads. Where the road outside the dwelling is unmetalled and usually little better than a quagmire, as is too often the case, it can hardly be expected that the collier's wife will take pride in the cleanliness of her house or her children. Untidiness of the inhabitants and prevailing dirt in the road and backyards are prone to be seized upon by property owners—often colliery proprietors—as a reason for doing as little as possible to improve the structural conditions of dwellings or to abate overcrowding. Is it reasonable, they may ask, to expect us to incur expense for people with these habits of life? Moreover, one of these days the mine will be worked out and the cottages will be useless. Again, all colliery districts are liable to subsidence of surface and cracking of house walls in unexpected places and it is better for us to build cheaply and repair as little as may be. In short, there are numerous and plausible arguments with which to persuade the local authority to take "long views" of the situation and do nothing. But in such case the answer of the local authority, as Dr. J. C. McVail has told us in a well-known essay and as Dr. Bulstrode shows by reference to other colliery villages, should be to declare its preference for "short views"; to make up its roads; to get dilapidated houses repaired; to close dwellings unfit for habitation; to cleanse its middens; to put a stop to overcrowding; and generally to be content to do its best to mitigate present evils without troubling unduly about the future.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Manchester.—The estimated population of Manchester at the middle of 1905 was 631,933, the birth-rate for that year was 29·0, and the death-rate was 17·82 per 1000. The infantile death-rate was 164·42 per 1000 births. The general death-rate was much below that formerly recorded; Dr. James Niven points out, however, that Manchester has but shared in the general improvement and that her position amongst the large towns is much the same as usual. Associated with this low Manchester death-rate was the fact that flour and coal were cheaper than in previous years but the price of wheat was unaltered. It is curious that in these circumstances the amount of outdoor relief was much greater in 1904 and 1905 than in previous years, but Dr. Niven, while viewing this with apprehension, thinks that the increased outdoor relief may be partly attributed to a change of policy. Although he evidently regards indiscriminate outdoor relief as eminently undesirable, he suggests that, in cases where through the illness of the bread-winner or from other causes a number of children are without sufficient means of subsistence, an effort should be made to keep the family well nourished until the older children can work. He has approached the Charity Organisation Society as to this point but apparently its funds will only avail for more or less temporary distress. We are entirely in accord with Dr. Niven that "attention to this most pressing need would greatly aid in the diminution of disease, which fastens on neglected and ill-nourished children." He is apparently of opinion that work of this nature should be original casein than it is possible to produce by the employment of high temperatures.

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[1] London: Wyman and Sons, Fetter-lane. Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. No. 236, price 3d.

[2] Ibid., No. 237, Price 3d.

THE meeting of the British Medical Association was formally opened in the Convocation Hall of the University of Toronto on Tuesday, August 21st, under the presidency of Dr. R. A. Reeve, dean of the Faculty of Medicine in the University.

MEDICINE AND THE LAW.

Application for Order for Inquisition in Lunacy.

RECENT events have made it necessary for medical *men to* appreciate the details of application for inquisitions in *lunacy. Section 90 of* the Lunacy Act, *1890*, provides that the judge in lunacy may upon application by order direct an inquisition whether a person is of unsound mind and incapable *of managing himself and his affairs.* The petition should be supported by affidavits by medical men—preferably unconnected with lunatic asylums—and by members of the family of the alleged lunatic, and *other* persons who *know him*, not *merely* stating that the *respondent* is of unsound mind, or setting forth in general terms the facts on which the *deponent relies*, but *giving the precise* facts and evidence. It is unnecessary and undesirable that an affidavit in support of a petition should be a *very lengthy document*, *but* the deponent should *state all the material facts on which* his inference of unsoundness of mind is based, and should see that the facts which he *does state* point to unsoundness *of* mind *and incapacity on* the *part* of the alleged lunatic to manage himself and his affairs. The petition for an *order for* an *inquisition* ought generally *to* be preferred by the nearest relative of the alleged *lunatic*, and if it is not *so preferred the* court looks at it with peculiar jealousy, for the fact implies that the persons who ought to protect *him* are *neglecting their duty.* On *the other* hand, no rule has been laid down to discourage proper applications from any quarter, since persons of unsound mind may *require protection* quite as much against their *relatives as* against those *who do not* belong to that class. Thus a commission may issue upon an information by the Attorney-General, *by* an *executor* under a will against a legatee under the same will, by a trustee under a deed against his *cestui que trust*, by a tenant of the supposed lunatic, where there was no doubt that the party was in a state that made him *the proper subject* of the *commission* (this was *done* in a case where action was opposed by the *subject's* mother, under whose care he was residing, while it *was* alleged that the tenant, being in *arrear for* rent, was *taking the* step with a view to gaining time); by a creditor against his debtor; and even by an absolute *stranger.* *Where the* alleged lunatic is within the jurisdiction no order is to be made upon any *petition* until after the expiration of seven clear days from service upon the alleged lunatic of notice of the petition. An inquisition may be ordered when either the person or the property of an alleged lunatic, whether a subject or an alien, and whether of full age or not, is within the jurisdiction. A commission in lunacy may issue *against* an infant, but as the Chancery Division has power over infant wards of court and their estates such a *proceeding* will *be* generally unnecessary, except in particular circumstances when the more ample powers given in lunacy may be required for managing their estates.

A commission may *also issue* against a subject (1) resident out of, but possessing property in, England, and (2) possessing property out of, but resident in, England. In *Ex parte Southcot* (2 Ves. sen. 401) Lord Hardwicke, after a full examination of the principles and practice applicable to the subject, made an order for a commission against an alleged lunatic resident in Flanders *but possessing* property in England, *directing the inquiry* to be held where the mansion and the greater part of the estate lay. This precedent has been repeatedly followed. *Under the Rules* in Lunacy, 1893, r. 1, an inquisition may be ordered in the case of persons incapable by mental infirmity, arising from disease or age, of managing their affairs. *An action* will *lie for maliciously suing out* a commission in lunacy against a person, but to support such an action malice or a want of probable cause must be proved. *If a total want of probable* cause is proved malice may be implied. But although express malice is proved some slight evidence of want of probable cause must be given. The court may, where the lunacy of a person is in question, interpose by making a provisional order for the care and custody of the person and the estate until the *lunacy* is finally determined. If the case is urgent the court will make the appointment upon an *ex parte* application (*Pountain, In re,* 37 Ch. D. 609). But this interference is provisional and arises *ex necessitate* in cases of emergency *and is* only allowed *as* subservient to the inquiry and while it is in progress. The *order of the judge* in lunacy directs the inquisition to be held (1) at or near the place of abode of the alleged lunatic if within the jurisdiction; and (2) *when the alleged* lunatic is not within the jurisdiction at the place in England where his *mansion, house, or other* property is situated. If he have no such property, then at his English residence; if he has no such *residence*, then in the county of Middlesex. This rule regarding *holding* the *inquisition at or* near the place of abode of the alleged lunatic is not, however, inflexible, and it has been occasionally departed *from*, when, e g., there was reason to believe that a *strong local feeling as* to the proceedings existed in the neighbourhood where *the alleged* lunatic resided. The judge in lunacy may make an order to prevent the removal of an alleged *lunatic out of the jurisdiction even before a commission* is issued. But such an order will not be made except upon applicants satisfying the court that the party is a fit *subject* of a commission in lunacy, and *that there* is a reasonable apprehension *of* an intended removal. Whether the inquiry is with or without a jury, and wherever it is held, the proceedings are open to the public. If the medical witnesses for the alleged lunatic see him *alone* the medical witnesses on the other side are entitled to the same opportunity. Section 98 of the Lunacy Acts, 1890-91, enacts that the *inquisition shall be confined to the question* whether or not the alleged lunatic is at the time of the inquisition of unsound mind and incapable of managing himself or his affairs, and *no evidence as to anything done or said by him or* as to his demeanour or state of mind at any time, being more than two years before the time of the inquisition, shall be *receivable in proof of insanity*, or on the trial *of any traverse* of an inquisition, unless the person executing the inquisition otherwise directs. If upon such inquisition it appears that the alleged lunatic is *of unsound* mind, *so* as to be incapable of *managing* his affairs, but that he is capable of managing himself, and is not dangerous to himself or to others, it may be so specially found and certified.

Although the power of *courts of* law to prevent the publication of their proceedings pending *litigation has* been repeatedly affirmed it is now rarely exercised, and fair, accurate, and *bonâ-fide* reports of cases in *any* public court of justice, a *category to which* the Master's Court belongs, are privileged, unless the evidence is obviously unfit for publication. But comments on lunacy *proceedings which are still sub judice* may be punished as contempt and Section 99 of the Lunacy Act gives the Master in Lunacy, while employed in executing an *inquisition, power* to *commit.*

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 23rd, 1828.

RODERICK MACLEOD, in reprinting *the* "Stanzas on Dr. Harrison," the week after *they* appeared in THE LANCET, states, that he would have published them sooner had he not been at the sea-side at the time they were transmitted to *him*, and that they were acknowledged in the *Excrescence* of the 19th of July. On turning to the Excrescence of that date, we find, as we had good reason to anticipate, no such acknowledgment; and the truth of the other part of RODERICK'S statement may be estimated, when we add, *that we* made an alteration, *proprio marte*, in the manuscript of our Correspondent, which alteration *is faithfully* copied in the Excrescence. *This reminds* us of SIMON PURE'S tranquil transcription from the pages of THE LANCET, in his exclusively *genuine* edition of Sir ASTLEY COOPER'S Lectures, of a long passage touching the connexion between literature *and science*, and the reciprocal influence which literary and scientific pursuits were supposed *to* exercise *on* each other. The passage is rather a fanciful one, and not, perhaps, very in the ten preceding weeks from 50 to 865, further rose last week to 1385; the highest annual rates from this disease last week were 8·0 in East Ham, 8·2 in Birmingham, 14·0 in West Ham, and 14·2 in Birkenhead. The largest proportional fatality from measles occurred in Rotherham, Tynemouth, Stockport, Norwich, and Huddersfield; and from whooping cough in Walsall and Swansea. Of the 50 deaths from diphtheria 15 occurred in London, eight in Manchester and in Salford, three in Portsmouth, and three in Bradford. The 25 fatal cases of scarlet fever included eight in London, four in Manchester, and two in Birmingham. Three deaths were referred to "fever" in Portsmouth and four in London. No case of small-pox was under treatment in the Metropolitan Asylums hospitals during the week, no case having been admitted since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever Hospital, which had been 3120 and 3051 at the end of the two preceding weeks, further declined to 3046 on Saturday, August 18th; 317 new cases were admitted to these hospitals during the week under notice, against 415 and 308 in the two preceding weeks. The deaths referred to *pneumonia* and other diseases of the respiratory organs in London, which had been 101, 111, and 112 in the three preceding weeks, further rose to 119 last week, but were 19 below the corrected average in the corresponding week of the four preceding years, 1902–05. The causes of 39, or 0·8 per cent., of the deaths registered in the 76 towns during the week under notice were not certified either by a *registered medical* practitioner or by a coroner. All the causes of death were duly certified in London and in 53 other of the 76 towns; the proportion of uncertified causes of death showed, however, a considerable excess in Gateshead, Sunderland, South Shields, and Wigan.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 11·8 and 14·0, per 1000 in the two preceding weeks, further rose to 14·4 during the week ending August 18th but was 2·6 below the mean rate in the same week in the 76 English towns. The rates in the eight Scotch towns ranged from 10·7 in Leith and 11·8 in Greenock to 19·2 in Paisley and 19·6 in Perth. The 492 deaths in the eight towns exceeded the number in the previous week by 11, and included 37 which were referred to diarrhœa, 11 to whooping-cough, four to measles, four to diphtheria, four to "fever," one to scarlet fever, and not one to small-pox. In all 61 deaths resulted from these principal epidemic diseases in the week under notice, against 50 and 64 in the two preceding weeks; they were equal to an annual rate of 1·8 per 1000, which was no less than 3·5 below the rate from the same diseases in the 76 English towns. The deaths attributed to diarrhœa in the Scotch towns, which had steadily increased in the four preceding weeks from 11 to 34, further rose last week to 37, of which 18 occurred in Glasgow, seven in Dundee, five in Paisley, and three in Edinburgh and in Aberdeen. Seven of the 11 fatal cases of whooping-cough were returned in Glasgow and two in Aberdeen, in which latter town two of the four deaths from measles also occurred. The four deaths referred to "fever" included three in Glasgow (all of which were certified as cerebro-spinal meningitis) and one in Perth. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 52, 61, and 68 in the three previous weeks, were again 68 last week, and exceeded by 28 the low number returned in the corresponding week of last year. The causes of 11, or 2·2 per cent., of the deaths registered during the week were not certified; the proportion of uncertified deaths in the English towns did not exceed 0·8 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 16·8 and 17·3 per 1000 in the two preceding weeks, further rose to 19·7 during the week ending August 18th. During the first seven weeks of the current quarter the death rate in the city averaged 18·6 per 1000, the death-rates during the same period being 13·4 in London and 12·9 in Edinburgh. The 143 deaths of Dublin residents during the week under notice showed a further increase of 17 upon the numbers returned in the two preceding weeks, and included 29 which were referred to diarrhœa, one each to measles, whooping-cough, and "fever," and not one either to small-pox, scarlet fever, or diphtheria. These 32 deaths from the principal epidemic diseases showed a further increase of 13 upon recent weekly numbers and were equal to an annual rate of 4·4 per 1000, the death-rate last week from the same diseases being 5·4 in London and 0·9 in Edinburgh. The 29 fatal cases of diarrhœa in Dublin showed an increase of 19 upon the number in the previous week, whereas the fatality of other epidemic diseases showed a marked decline. The deaths both of infants and of elderly persons considerably exceeded the numbers in recent weeks. Three inquest cases and two deaths from violence were registered; and 38 per cent. of the deaths occurred in public institutions. The causes of all the deaths registered during the week, except one, were duly certified by a registered medical practitioner or by a coroner, and the causes of all the deaths in London and in Edinburgh were duly certified.

THE SERVICES.

Royal Navy Medical Service.

The following appointments are notified:—Fleet Surgeons: H. W. G. Doyne to the *Bulwark* and G. T. C. Collingwood to the *President*, for London recruiting headquarters; C. C. Woodwright to Portland Hospital; and G. A. S. Bell to the *Irresistible*. Staff Surgeons: Y. D. S. Milln to the *Proserpine*, and on recommissioning. *Surgeons:* R. S. Osborne to the *Merlin*, on commissioning; W. L. Hawkins to the *Leda*, on recommissioning; J. R. Muir to the *President*, for three months' study at Dreadnought Hospital, Greenwich; and G. S. Davidge to the *President*, for three months' study at West London Hospital.

Royal Army Medical Corps.

Lieutenant-Colonel T. H. Corkery, retired list, is appointed to the medical charge of the troops at Exeter, and Major A. R. Aldridge is appointed Sanitary Officer at the Indian Army Headquarters.

Indian Medical Service.

The King has approved of the following promotion made by the Government of India:—*Madras:* To be Colonel: Lieutenant-Colonel William O'Hara (dated May 28th, 1906).

The King has also approved of the retirement from the service of the undermentioned officer: Lieutenant-Colonel David Prain, C.I.E. (dated July 31st, 1906).

Volunteer Corps.

Rifle: 2nd (Berwickshire) Volunteer Battalion (the King's Own Scottish Borderers): David Robert Taylor (formerly Lieutenant) to be Surgeon-Lieutenant (dated August 18th, 1906). 1st (Ross Highland) Volunteer Battalion, Seaforth Highlanders (Ross-shire Buffs, the Duke of Albany's): Surgeon-Lieutenant R. Brodie to be Surgeon-Captain (dated August 18th, 1906).

Royal Army Medical Corps (Volunteers).

Eastern Command: Maidstone Companies: Joseph Ward to be Lieutenant (dated August 1st, 1906). Bedford Bearer Company: Lieutenant C. H. Perram to be Captain (dated August 18th, 1906). Sussex and Kent Bearer Company: Major J. Turton (Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Sussex and Kent Volunteer Infantry Brigade) to be Lieutenant-Colonel (dated August 18th, 1906).

Royal Hospital, Chelsea.

Lieutenant-Colonel R. W. Ford, D.S.O., R.A.M.C., having completed five years' service as deputy surgeon of the Royal Hospital, Chelsea, leaves that establishment and is succeeded by Lieutenant-Colonel R. J. C. Cottell, who served in South Africa in 1899 to 1902. Colonel Ford is under orders for Gibraltar.

Enteric Fever in India.

The Government of India has sanctioned the formation of a standing committee for the purpose of investigating and advising on enteric fever in India and its prophylaxis. The undermentioned officers, nominated by the Commander-in-Chief, have been appointed to the committee:—*President:* Surgeon-General W. L. Gubbins, principal medical officer of His Majesty's forces in India; *Vice-President:* Surgeon-General A. Scott Reid, principal medical officer of the Northern Command; *Members:* Colonel R. H. Forman, done by private charity rather than by official outdoor relief, but possibly something approaching the Elberfeld system of relief, where the money is dispensed by unpaid visitors who are responsible for an economical and productive disposal of the poor-rate funds, might best meet the requirements of these cases. 24 per cent. of all the deaths in Manchester occur in its public institutions, and Dr. Niven thinks that possibly the maintenance of this high percentage represents a diminished aversion on the part of the poor to seek admission to the union hospitals.

An increase in the prevalence of diphtheria is taking place in Manchester at the present time, and the medical officer of health is consequently devoting more attention to the subject of its causation and control. During the year a circular was addressed to the medical practitioners urging them, in dealing with suspicious cases, at once to inject antitoxin and not to wait until their suspicions are confirmed by the bacteriologist; both the syringes and the antitoxin are at the disposal of medical practitioners on application at the town hall. "If," says Dr. Niven, "we could by sufficient promptitude in treatment avert the fatal issue of diphtheria we should be fulfilling one of the aims of the Public Health Act"; and he considers that it is difficult to see how a medical man can be relieved of responsibility if he fails to save a child under his care suffering from diphtheria, assuming that the fatal issue can be averted by injection of a sufficient amount of antitoxin within the first three days. So strongly does Dr. Niven feel upon this point that during recent months letters have been sent to practitioners when it has been doubtful whether antitoxin has been used. This attitude on the part of a medical officer of health raises some novel and interesting issues and we may add that we are far from antagonistic to the attitude adopted, though it indicates an individualistic tendency on the part of the public health authorities. It is pointed out in the report before us that diphtheria is largely spread by "carrier" and unrecognised cases in schools and elsewhere, and the medical officer of health remarks, "All these are conditions which a sanitary inspector cannot be expected to ascertain or to deal with; yet to discover them and prevent them from remaining sources of danger is the essence of the prevention of diphtheria"; and he then pleads both with respect to diphtheria and scarlet fever for the services of a "medical investigator," who would be able to undertake the requisite investigation rapidly and to administer preventive doses of antitoxin when requisite. In Dr. Niven's view "the power of isolation in hospital to limit the spread or fatality of scarlet fever and diphtheria is but limited and more preventive value could be got, in my opinion, by increasing the staff of the medical officer of health." As regards diphtheria "contacts," he adds: "As for the wholesale isolation of contacts I do not believe it to be practicable here and I am not clear that it is desirable."

Much work was done in 1905 on the investigation of enteric fever, a disease which, falling mainly on those at ages from 10 to 45 years, is of considerable economic importance. The conclusions of the investigators are to the effect that the disease is spread in Manchester largely by failure to recognise the disease, especially in the case of children; its infective power is "fairly high and this is also particularly obvious in children." In the prevention of the disease skilled inquiry by trained health officers is likely to produce the greatest results at a minimum cost, and Dr. Niven is careful to point out that the best results are not to be obtained by the ordinary routine methods of the sanitary inspectors, useful as they may be. Shell-fish have, we are told, a decided influence in maintaining the prevalence of enteric fever and diarrhœa in Manchester, and in order that cases thus caused can be properly investigated further powers are necessary for procuring information with reference to the sources of the infected shell-fish. Mussels not properly cooked should not, in his opinion, be used as an article of food. He thinks, too, that probably flies play a part in the spread of enteric fever in August and September, and that therefore steps should be taken towards the destruction of the house-fly and its eggs. Dr. Niven has evidently, like others, found considerable difficulty in procuring from the wholesale shell-fish merchants the names of the "layings" from which supplies of shell-fish were furnished to retail dealers involved in the sale of suspected mussels. He has, however, obtained sufficient information to raise suspicion against certain layings on the Welsh and Irish coasts, and he adds that he will not be satisfied of their freedom from pollution without examination either by himself or by the Local Government Board. Curiously enough, Dr. Niven makes no reference to any Dutch mussels, but whether this is because none of these imported molluscs are consumed or because none have come under suspicion is not clear. Certainly a large number of mussels are imported into this country from Holland. We are quite in agreement with Dr. Niven that the local authority should be in a position to obtain the name of any laying or natural gathering ground from which any given mussels have been procured, and that shell-fish hawkers should be duly registered. Provisions such as these should be embodied in any fresh Public Health Bill unless in the meantime Manchester can secure such powers for herself by means of a local Act. But possibly the shortest way of bringing about amendment of the law as regards shell fish generally would be to urge the Local Government Board to promote legislation on the lines recommended by the Royal Commission on Sewage Disposal. Dr. Niven is clearly in need of further professional assistance to enable him to carry on the admirable investigations which he has in hand and in contemplation, and every medical officer of health who is at the same time an epidemiologist will agree that no sanitary inspector can bring to bear upon these etiological investigations the knowledge necessary to enable their full value to be brought out. It is to be hoped that the future will see a very considerable increase in the number of assistant medical officers of health throughout the country.

A capital summary of the measures taken in Manchester towards the better control of tuberculosis is furnished in the report, and with regard to the system of voluntary notification Dr. Niven makes the following somewhat significant remarks: "It has been believed by many that a scheme of notification would fail unless there were a hospital to which cases might be sent by the authority dealing with notification. This is not the case. But there is more in this view than I had at first supposed. Even supposing Bowdon Hospital and the Hardman-street out-patient department had not been in existence it would still have been advisable to begin with a notification scheme so that the needs of the community might be ascertained and much useful work would have been done by way of instruction. But it has to be remembered that to sustain household visits month after month, perhaps for years, becomes rather trying and demands great tact and management from the visitor as well as judgment on the part of the person visited." But Dr. Niven is inclined to believe that the death-rate from pulmonary tuberculosis is beginning to show a result from the work which has been done in consequence of notification since 1899, and all who know Dr. Niven and his work will trust that his hopes may be realised.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8877 births and 5157 deaths were registered during the week ending August 18th. The annual rate of mortality in these towns, which had steadily increased in the five preceding weeks from 11·7 to 14·6 per 1000, further rose to 17·0 in the week under notice. During the first seven weeks of the current quarter the death-rate in these towns averaged 13·4 per 1000, the same rate having also prevailed in London. The lowest death-rates in the 76 towns last week were 6·5 in Handsworth, 6·6 in Hornsey, 7·2 in King's Norton, and 7·3 in Devonport; the rates in the other towns ranged upwards to 26·0 in Tynemouth, 26·1 in Middlesbrough, 26·8 in Wigan, and 28·9 in Birkenhead. The 5157 deaths in the 76 towns showed a further increase of 733 upon the numbers returned in recent weeks, and included 1623 which were referred to the principal epidemic diseases, against numbers increasing from 361 to 1105 in the five preceding weeks; of these no fewer than 1385 resulted from diarrhœa, 103 from measles, 50 from diphtheria, 42 from whooping-cough, 25 from scarlet fever, 18 from "fever" (principally enteric) and not one from small-pox. The deaths from these principal epidemic diseases were equal to an annual rate of 5·3 per 1000 in the 76 towns and to 5·4 in London. No death from any of these epidemic diseases was registered last week in Bournemouth, Reading, Halifax, or Stockton-on-Tees; whereas they caused annual death-rates equal to 11·9 per 1000 in Norwich and Leyton, 15·0 in West Ham, and 16·0 in Birkenhead. The deaths referred to diarrhœa, which had steadily increased

Ten weeks ago I was called to see a young lady pupil teacher in a school of 18 young girls. She had arrived at the school 48 hours before I saw her and had well-marked mumps. During this 48 hours she had been in close association with the girls during the daytime and had slept in the same dormitory for two nights with several of them. None of the girls had ever had mumps as far as I could ascertain. The torch and the magazine were therefore thoroughly introduced to each other. Instead of waiting for the almost inevitable explosion to follow (a course, I fear, that I have pursued before now), with the help of the head mistress I instituted a regular drill twice daily, which consisted in each girl thoroughly washing out her mouth and gargling with an antiseptic lotion under direct supervision. This was kept up for a fortnight and no case of mumps occurred in the school. I claim no originality for this idea, which has probably suggested itself ere now to many others, but I intend to try some similar plan in my next household that shall have a case of scarlet fever. The specific organism in each disease probably takes some hours to reach a site where it can comfortably grow and multiply and our endeavours should be directed to slaying it or them before they get safely located.

I am, Sirs, yours faithfully,

Caterham Valley, August 20th, 1906. W. BLIGH, M.D. Lond.

ANALYSIS OF SUSPECTED FOODSTUFFS.

To the Editors of THE LANCET.

SIRS,—A patient of mine after eating certain brown bread was taken with violent pain and vomiting, and her mother also was sick on eating the bread. A sample of it was brought to me and showed minute blue specks all over and through its substance. I sent some to the medical officer of health of the district where my patient lived and he, although he sent some on to the county analyst, affirmed himself in no way responsible for its analysis. The Maidstone analysts declined to examine the substance, although the Home Office referred me to them. Now what am I to do? Are the public to be semi-poisoned and no one to be responsible for an inquiry into the cause? I offered the usual fee for its analysis in vain, yet I fail to see why the medical man (to whom the complaint is generally made) should bear the cost of tracing the cause of such trouble. The baker from whom came the bread had promptly returned the flour to the millers and would not or could not give any information. Trusting that one of your numerous readers may enlighten me as to the law on the point,

I am, Sirs, yours faithfully,

Penge, S.E., August 18th, 1906. HERBERT GREENWOOD.

BULLET EXTRACTED AFTER BEING 42 YEARS IN THE BODY.

To the Editors of THE LANCET.

SIRS,—Some time ago I was asked to attend a man for a swelling in the calf of his leg, which prevented him walking. On examination the swelling appeared to be in connexion with a hard foreign body situated deep down in the tissues. I made an incision into this mass of inflamed substance and dissected out a flattened bullet. The patient was a pensioner and formerly belonged to the Royal Marines. He received a shot in his hip during an action off the West Coast of Africa while serving on board H.M.S. *Madagascar*. He was in consequence invalided home and for 42 years this bullet had gradually worked its way from the hip to the calf, where it was extracted owing to the irritation it produced.

I am, Sirs, yours faithfully,

Ealing, W., August 22nd, 1906. EDWIN CHILL, M.D. Edin.

WHAT IS A SPECIALIST?

To the Editors of THE LANCET.

SIRS,—The discussion about "specialists" has been most opportunely started by "A. Z." in THE LANCET of July 28th, p. 253. I have always failed to see why it should be considered unprofessional for a medical practitioner to intimate on his door-plate, bills, &c., the fact that he practises a special branch of his profession, to which he has devoted special time and energy. And this the more as I am fully aware that the present system of unavoidably coupling specialisation with hospital appointment is not only a hindrance to the bringing out of what is best in our young and talented practitioners but is also a means of foisting on the public many men as specialists who have often nothing more "special" about them than their attachment to a hospital. The letter of "F.R.C.S. Eng., M.D." in THE LANCET of August 18th, p. 463, brings out that very forcibly and whoever has worked within the walls of a hospital will doubtless have met such instances as he has mentioned.

As the system stands at present it is only the fortunate few, who have managed to catch a timely connexion with a hospital, who are recognised and known as specialists. The public in order to find a specialist can only turn either to the lists of the hospital staffs or to the private practitioner who has generally no better information to give, especially if he chances to be a stranger in the town in which he practises. And, furthermore, why, I ask, is the specialist to be prevented from proclaiming openly to the public what everybody takes for granted? Why is he to be dependent on the goodwill of his fellow-practitioners to recommend and send patients to him?

In Germany and Austria (of both of which I have experience) it is a common custom for the general practitioner to indicate on his door-plate that besides being a "practischer arzt" (general practitioner) he has made a "specialität" (speciality) his own, a fact which does not seem to affect the status of the "real specialist" who comes in for his share of legitimate work. There, indeed, the latter is the specialist κατ' ἐξοχήν, because in the earlier stages of specialisation he has the competition of the general practitioner, and it is only when he has attained eminence in his branch (which eminence varies according to the standard of the town) that he is looked upon as differing from the general practitioner.

I think a good deal of mere conservatism clings to our profession and an imaginary standard of honour results. Surely it is no advertisement, but the mere open statement of an understood fact, that a man who has specialised (if we recognise specialisation at all) intimates this to his friends, patients, and would-be patients. I for one should be glad to see this done—the sooner the better.

I am, Sirs, yours faithfully,

August 21st, 1906. S. H.

VITALITY OF THE EXCISED MAMMALIAN HEART.

To the Editors of THE LANCET.

SIRS,—I was recently a passenger in a train when about 40 miles from London a woman was run over. Her body was divided into two across the thorax and nearly the whole heart—the ventricles and portions of the auricles—had somehow been jerked out and lay quite apart. The ventricles were still making irregular but definite contractions, exactly like those which may be seen in the heart of a frog after prolonged exposure. It was at least a minute, and I think possibly two minutes or more, after the injury was inflicted before I was in a position to make this observation and the movements had apparently ceased in another minute or two when I had to re-enter the train. Possibly it is not generally known that the mammalian heart may so clearly exhibit its powers of independent action. In any case the opportunity of observing such muscular contractions in the human heart must arise very rarely.

I am, Sirs, yours faithfully,

August 17th, 1906. F.R.C.S. EDIN.

ROYAL CORNWALL INFIRMARY, TRURO.—The annual meeting of the subscribers to this institution was held on August 13th under the presidency of the Hon. John Boscawen. The medical report stated that during the past year 473 in-patients had been admitted, against 476 in the previous 12 months. 1165 out-patients had been treated, compared with 1003 in the preceding year. The annual cost per bed was £57 6*s*. In 1905 Sir Robert Harvey gave £1000 for endowing a bed to the memory of the late Lady Harvey and in January, 1906, he gave a similar sum for endowing a bed in memory of his late son. The financial statement showed that the expenditure exceeded the income by £195 and the committee state in the report that unless the deficiency is met one of the wards must be closed. The report of the committee of the Perranporth Convalescent Home for Men (founded and endowed by Mr. Passmore Edwards) stated that 114 patients had been admitted during the year and the financial statement was satisfactory.

principal medical officer of the Bombay Brigade; Lieutenant-Colonel T. P. Woodhouse, Captain L. W. Harrison, Captain E. B. Knox (secretary), Captain A. B. Smallman, and Lieutenant E. J. H. Luxmoore, Royal Army Medical Corps. Nominated by the Home Department:—Members: Lieutenant-Colonel J. T. W. Leslie, Sanitary Commissioner with the Government; Lieutenant-Colonel D. Semple, Director of the Central Research Institute; Major G. Lamb and Captain E. D. W. Greig, I.M.S. Lord Kitchener presided on July 31st at Simla over the first meeting of the committee and gave a long and interesting address in which he set forth the aim and object with which the committee had been constituted and briefly outlined the work which lay before it. The Commander-in-Chief in his address passed in review the great advances which had been made and not only showed that he had been uncommonly well posted up in this respect but that he was able, from his own point of view, to make some practical and suggestive remarks on the subject and practice of anti-typhoid inoculation.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The number of this journal for the present month is a good one. Lieutenant-Colonel A. M. Davies, R.A.M.C., continues his papers on the reports of the Commission for the Investigation of Mediterranean Fever and deals with various points connected with the sanitary condition of the barracks in Malta under the general headings of situation, construction, water-supply, and drainage. There are also contributions on the Health of the Soldier, with Special Reference to Preventable Diseases, by Lieutenant-Colonel H. J. Barratt, R.A.M.C., one of a descriptive and practical nature by Major P. G. Ievers, R A.M.C., on Rider's Sprain, and Colonel David Bruce, R.A.M.C., C.B., F.R.S., deals with South African Stock Diseases. The Removal of Wounded in Hill Warfare, by Captain W. W. Jeudwine, I.M.S., gives an account of a method recently practised by the 30th Punjab Infantry. It is needless to say that the removal of wounded men in Indian mountain warfare is often attended with extreme difficulty. The Inspection of Tinned Foods, by Major W. W. O. Beveridge, D.S.O., R.A.M.C., is mainly based upon experience acquired in the South African War. There are besides the foregoing several other papers of a scientific, bacteriological, or clinical nature.

Correspondence.

"Audi alteram partem."

GOATS' MILK FOR INFANTS.

To the Editors of THE LANCET.

SIRS,—In the *Daily Telegraph* of August 15th the following report appears:—

> Yesterday at the Battersea coroner's court Mr. John Troutbeck held an inquest on the body of Tomasso Cammindillo, aged seven months, son of an ice-cream vendor, living in Sheepcote-lane, Battersea. The coroner interpreted the evidence which was given in Italian. It appeared that the child, which weighed only a little over four pounds, had been fed for six months on goats' milk, and the father explained that he resorted to this because he considered it lighter than cows' milk. Dr. Freyberger said death was due to malnutrition. Goats' milk was worse than skimmed milk and did not contain sufficient fat or sugar. A verdict of death from natural causes was recorded.

It would be interesting to know where Dr. Freyberger obtained the analysis which enabled him to state on oath that "goats' milk was worse than skimmed milk and did not contain sufficient fat or sugar."

Turning to Stevenson and Murphy's "Treatise on Hygiene and Public Health" I find the percentage constituents of the human, cows', and goats' milk given as follows:—

—	Total solids.	Proteids.	Fats.	Milk sugar.	Salts.	Water.
Human	12·59	2·29	3·78	6·21	0·31	87·41
Cows'	12·83	3·55	3·69	4·88	0·71	87·17
Goats'	14·29	4·23	4·73	4·46	0·76	85·71

Whereas the composition of skimmed milk is given as: proteids, 4·03; sugar, 4·04; fat, 1·09; and water, 90·12 (vol. i., pp. 427 and 436). On reference to Pavy's "Treatise on Food," second edition, p. 185, we find the statement that:—

> The milk of the cow ...... the most closely approximates to that of woman but is rather more highly charged with each kind of solid constituent. Next follows the milk of the goat which taken altogether is again rather richer.

These references are, I think, quite sufficient to prove what I had hitherto believed was a matter of common knowledge—namely, that goats' milk is rich in all the constituents of a perfect food and not to be compared with skimmed milk as a form of nourishment. That it is also a useful food for children is shown by the following extract from Dr. Eustace Smith's classical book on "The Wasting Diseases of Infants and Children" (sixth edition, pp. 43, 44).

> With some children, in spite of all possible precautions, cows' milk, however carefully it may be prepared and administered, cannot be digested. ...... In such cases, if there are objections to a wet nurse, recourse must be had to the milk of some other animal, and preference should be given to a milk which *contains* a smaller proportion of casein than that found in the milk of the cow, such as goats' or asses' milk.

The milk, it is true, has an unpleasant smell, but the sense of smell is not well developed in children (Holt's "Diseases of Children," p. 27) and infants do not appear to mind the disagreeable odour. Dr. Freyberger might have gathered from the many papers on Malta fever which have appeared during the past few months that in Malta the *only* milk available is goats' milk. I can only hope that Dr. Freyberger's evidence is incorrectly or imperfectly reported.

I am, Sirs, yours faithfully,
R. J. BLACKHAM, D.P.H. R C.P.S. Lond.,
Captain, R.A.M.C.
August 20th, 1906.

*** We refer to this question in an annnotation.—ED. L.

THE POSSIBLE IMPORTANCE OF EARTH-WORMS AS A FACTOR IN THE SPREAD OF DISEASE.

To the Editors of THE LANCET.

SIRS,—In an article under the above heading which appeared in your issue of July 28th, Dr. Charles F. Fraser describes certain parasitic nematodes found both in the alimentary canal and encysted in the tissue of the common earth-worm *Allolobophora*. The descriptions and drawings that he gives do not permit of the identification of this nematode but it is most probably *Pelodera pellio* A. Schneider. Schneider points out that the larvæ of this species live encysted in the body cavity of earth-worms and are especially numerous in or on the septa. The adults live in damp earth or rotten substances. Another nematode parasitic in the earth-worm is *Ascaris* sp., described by Leuckart, whose second host is probably the mole and possibly also certain carnivorous birds. A third species, named *Discelis filaria* Dujardin, appears to have occurred but once in earth-worms at Paris; although sought for it has not been found again. Finally, we have a fourth nematode, *Spiroptera turdi* Molin, which infests earth-worms. The larva of this parasite is common in earth-worms in Central Europe. It is only found in the ventral vessel but throughout its entire length. The adult form occurs in the various species of *Turdus*, the redwing, the blackbird, song-thrush, and also in the starling. A fuller account of the round worms parasitic in earth-worms will be found in my paper "On the Nematodes Parasitic in the Earth-worm," in the *Archives de Parasitologie*, Vol. VI., 1902, p. 619.

I am, Sirs, yours faithfully,
A. E. SHIPLEY.

Christ's College, Cambridge, August 15th, 1906.

THE PROPHYLAXIS OF MUMPS.

To the Editors of THE LANCET.

SIRS,—When we medical men are called into a household one of whose members is found to be suffering from some contagious malady we are, I fear, usually content with carefully shutting the stable door after the horse has escaped. In other words, we isolate the one sufferer and go away leaving the others to take their chance, with the practical certainty that at the end of the incubation period one or more other members of the household will become ill with the same disease. That this need not always be the case the following instance exemplifies, though of course it cannot be held to absolutely prove anything the technical point of view it is surprising how well this old building has been adapted and rendered healthy by through ventilation and the piercing of numerous windows into the antique walls. Here there are paying wards where strangers taken ill at Lisbon may obtain better nursing than would be possible in a hotel. But if the main part of the building is old, there are several annexes that are quite modern. This is notably the case with regard to the laboratory for clinical analyses, for the application of the Roentgen rays, and for the Finsen system of treatment. For all these purposes a special pavilion has been built in the gardens and is under the direction of Dr. Azevedo Neves who was one of the secretaries of the International Congress of Medicine.

As especially typical of the progress being accomplished in Portugal the Institute of Hygiene should be mentioned. It is beautifully situated on high ground commanding a magnificent view of the Tagus and the port of Lisbon. Here hygiene is taught, notably by the inspector-general of the sanitary services, Professor Ricardo Jorge. The object is to instruct medical practitioners and civil engineers, so that they may obtain diplomas in public health questions. This diploma is now necessary before they can be nominated to a post in the administration of any of the sanitary services. There is here a small but very practical museum where various methods of domestic drainage can be studied with working models. Many systems of ventilation and other kindred subjects are at the disposal of students. Then there are chemical laboratories. Here some 40 samples of milk are analysed every day, together with cheese and other alimentary substances. A good deal of adulteration has been detected at the Institute of Hygiene and this work also serves the purpose of demonstration and teaching.

In the application of these lessons to actual life it is necessary to remember that this Institute of Hygiene was only created by a law enacted on Dec. 24th, 1900. It was the direct outcome of the alarm caused by the several cases of plague that had occurred at Oporto. There has not been much time for the courses of instruction and the diplomas in hygiene now given to affect the general population. Indeed, I was not favourably impressed when taken to see some cheap dwellings where four very small rooms may be rented for about 12*s.* a month. In English towns this would be a very low rent, but in Portugal the wages earned are also very low. It is calculated that each square metre of construction cost £2 2*s.* 5*d.* The company which has built some 45 such cheap dwellings has paid its shareholders 4 and 4½ per cent. interest. More interesting than these dwellings are the 12 asylums situated in different parts of Lisbon to receive, during the day time, children who are abandoned or cannot remain at home because their parents are at work. Here these children are fed, given primary instruction and also are instructed in some manual work. Altogether some 2000 children are thus cared for every day at Lisbon.

Another admirable institution is an adaptation of the French *goutte de lait.* Here are model stables with 16 milch cows. Poor mothers come and are advised as to their infant children and the diet they, as mothers, should take; for every effort is made to encourage mothers to suckle their own children. When necessary suitable food for this purpose is given to them. When they are really unable to suckle their own children, and at the period of weaning, sterilised milk is given and this is obtained fresh from the cows on the premises. There are here a clinique for children's ailments and four *couveuses* for prematurely born infants. Though the *couveuses* were bought two years ago they have not often been utilised. Some hundred infants are taken to this place every day. Modern appliances and machinery are used to wash and sterilise the bottles. Each mother receives eight bottles that can hold a quarter of a litre. The milk costs about 2*d.* per litre. Every two months the cows are tested with tuberculin so as to make quite sure that the milk is trustworthy. The straw given to the cows is removed three times a day and the stables are very lofty and airy. Two women sleep on the premises so as to be up betimes in the morning and have the food ready prepared for the infants at the earliest hour. Careful records as to the weight and size of the children are kept and thus useful statistics are beginning to accumulate. The rooms where the parents and children have to wait are lofty and many windows provide an abundance of light and air. This is an institute that English tourists should visit, for there are not many establishments of this sort in England. The local authorities of Battersea, Bradford, St. Helens, Liverpool, and some other places have organised depôts for the sale of sterilised milk to feed infants, but there is not the same care taken in regard to the mothers or the same clinical advantages as are given at Lisbon.

For the amelioration of the food-supply there is at Lisbon a coöperative bakery which had a turnover amounting last year to £20,000. There are 3444 shareholders and each share is worth £10. They sell the bread at the ordinary price of 4*d.* the kilogramme but there is a 3 per cent. bonus on the purchases besides the interest on the capital. More than 17,000 loaves are baked per day. But the bread is kneaded by hand and baked in ovens warmed by burning wood inside. There is nothing modern or even ingenious about this. When the Lisbon coöperative bakery is compared with the marvellous coöperative bakeries dotted about all over Belgium, and especially the parent institutions of Ghent and Brussels, it will be seen that in this respect the Portuguese have still a great deal to learn. Nevertheless, taken altogether, it is very evident that the Portuguese are endeavouring to move forward. In many different directions beneficent institutions have been established that contribute to the social welfare and progress of the people.

THE OUTBREAKS OF PLAGUE IN JEDDAH AND TREBIZOND.

(FROM THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.)

THE first news of the appearance of plague in Jeddah was received in Constantinople on May 31st. It seems from subsequent reports that the earliest case was seen on the evening of May 29th. The patient was an Abyssinian, aged 30 years, living in a house in the Sabban "hosh." A "hosh" is a collection of buildings around a courtyard, some of which are almost invariably used as stores for all kinds of goods and others as dwelling-places. This patient had been ill for seven days; he was, when seen, comatose and presented three buboes, one in the groin and two large ones in the neck. He was removed to the municipal hospital on May 30th and on the same day a second case was discovered. A microscopical examination of the contents of one of the buboes in the first case was made and it was found that large numbers of bacilli, resembling morphologically the plague bacillus, were present. On May 31st a third case was discovered in the morning; a little later the bodies of two other persons, apparently dead of the disease, were found, and towards evening three more cases were reported, one of which had been found dead. There had thus been eight cases with four deaths up to the evening of May 31st. On June 1st an extraordinary meeting of the Constantinople Board of Health was held and it was decided to impose five days' quarantine, together with disinfection, and application of the regulations for rat destruction, upon arrivals from Jeddah. Special measures were imposed upon *sambouks* (native coasting vessels) leaving that port. Orders were sent to evacuate and to disinfect the rice store, in which it was reported the earliest patients had been employed. It was said that rice from India had been stored in this depôt and some suspicion attached to this rice as having been possibly the means of importing the infection, either in the rice itself or by means of infected rats. It is noteworthy, however, that no dead or plague-infected rats have been found at Jeddah during the course of the outbreak. Instructions were also sent to isolate the sick and those who had been in contact with them, to disinfect thoroughly the houses they had occupied, and to improve as far as possible the sanitary state of the town of Jeddah. The further course of the outbreak has been as follows:—

From May 29th to June 3rd	...	13 cases,	7 deaths.
,, June 4th ,, ,, 10th	...	8	9
,, ,, 11th ,, ,, 17th	...	7 ,,	7 ,,
,, ,, 18th ,, ,, 24th	...	11 ,,	12 ,,
,, ,, 25th ,, July 1st	...	3 ,,	7 ,,
,, July 2nd ,, ,, 8th	...	5 ,,	5 ,,
,, ,, 9th ,, ,, 15th	...	9 ,,	9 ,,
,, ,, 16th ,, ,, 22nd	...	11 ,,	11 ,,
,, ,, 23rd ,, ,, 27th	...	5 ,,	5 ,,

THE MEDICAL AND HYGIENIC ASPECTS OF LISBON.

DISINFECTION AND NOTIFICATION FOR TUBERCULOSIS.—THE ISOLATION HOSPITALS.—THE LARGEST HOSPITAL.—THE INSTITUTION AND DIPLOMA OF HYGIENE.—CHEAP DWELLINGS.—ABANDONED CHILDREN.—MOTHER'S MILK.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE Fifteenth International Congress of Medicine meeting at Lisbon this year has undoubtedly helped to make known to the British tourist and traveller that Portugal is at once an accessible and interesting country. On inquiry I find that more passages than usual have been booked for Lisbon this summer. For instance, almost every berth on the last two Booth line steamers sailing from Liverpool and Havre for Oporto, Lisbon, and Madeira, was taken. This is the more remarkable as it is not the best time of the year; Portugal is more pleasant in the late autumn and early spring. However this may be, the fact that the tide of tourists is already beginning to flow in that direction recalls to my mind that I have not yet completed the description of the many interesting institutions I visited while in Portugal for the International Congress of Medicine. Among other things and as a matter which directly affects tourists, I did not describe the means taken for isolation and disinfection at Lisbon. The fear of contracting some infectious or contagious fever has deterred many British tourists from going to the continent. This was justified by the fact that there were many places where the necessary precautions were not enforced. Now, on the contrary, not only is such neglect exceptional but in many localities better measures are adopted than those in vogue in England. For instance, in Portugal, according to a law which dates as far back as 1868, the notification of infectious diseases is rendered obligatory. Disinfection is now practised in all cases of typhus fever, typhoid fever, scarlet fever, diphtheria, cerebro-spinal meningitis, plague, cholera, yellow fever, and even for tuberculosis. It was on August 30th, 1902, that tuberculosis was added to the list. In notifying tuberculosis the medical attendant must not only describe the case but also state what measures he thinks are necessary. Indeed, the whole of the scheme for dealing with this disease is so radical that nothing short of an economic revolution could render its strict application possible. For instance, a fine of 4000 reis is inflicted on agencies, offices, and information bureaux recommending or introducing domestic servants unless they can produce a medical certificate not more than three months old which declares that the applicant for employment has been vaccinated, and is not suffering from tuberculosis or other contagious disease. It appears that this rule is carried out fairly well at Lisbon, at any rate in regard to domestic servants and also as to journeymen bakers.

The principle, however, that no one suffering from pulmonary tuberculosis should be allowed in a workshop, factory, mill, or any other place of employment where he might possibly contaminate healthy fellow-workers, though advisable from the prophylactic point of view, is not practicable in the present economic conditions of Portugal, putting aside all other arguments against it. There are neither the financial means nor the sanatoriums to provide for the existence of the many thousands of persons such a measure would throw out of work. What is more practicable, and this is done, is the infliction of fines on all hotel or lodging-house keepers and others who let an apartment or a room which has been previously occupied by a tuberculous patient without its having been duly disinfected. No such guarantee exists in England and on taking apartments at the seaside it might so happen that they had just been vacated by someone even in an advanced stage of tuberculosis. In Portugal also the provision of spittoons is much more general than in England and the spittoons are of a better model. They are of enamelled metal on stands, so as to be raised 18 inches or two feet from the ground. The expectoration is thus not so likely to fall on the floor but is immersed in the disinfecting solution that is within the spittoon. These spittoons are to be found in every sort of building where the public is likely to congregate, including the churches. Though I have visited many countries I do not remember having seen anywhere such ample provision of spittoons as at Lisbon. This is a simple and inexpensive precaution and yet it must be of great practical service in preventing the contamination of the atmosphere by desiccated sputum. The civil governors have the right to enact by-laws by which persons who do not avail themselves of the spittoon but spit on the ground can be prosecuted and fined.

So thoroughly is tuberculosis considered a contagious disease that the hospital for the treatment of this malady is on the same grounds as the hospital for the isolation of infectious or contagious fevers. This is situated in the district of Rego on an open, uninhabited space to the north of Lisbon. The larger portion of the grounds is devoted to the treatment of epidemic diseases. In the centre there is a broad tree-planted avenue with seven one-storey pavilions on each side. These pavilions hold 33 beds. Then behind them there are smaller structures, some with only six beds and others with 15 beds. Thus various diseases can be readily separated from each other. In normal times only a few of the pavilions are occupied, but the beds are in readiness and in a few hours any of the reserve buildings would be prepared to receive patients. Altogether there are for both sexes 516 beds.

A railing and a garden separate this fever hospital from another cluster of buildings designed for the treatment of tuberculosis. The two services seemed to me very near each other. This proximity may be useful in economising trouble and cost of land and administration, but I am doubtful if it is altogether wise to keep tuberculous patients in the neighbourhood of infectious fevers, and notably of small-pox. There are 212 beds for cases of tuberculosis in a simple building three storeys high. Very ample space is given. No curtains are allowed; everything is beautifully white, clean, enamelled, and easy to wash. There is a broad expanse of country to look out upon from the windows. Six-inch apertures near the ceiling and near the floor assure a current of air when the windows are closed. At the end of the dormitories a splendid sitting room and dining room is provided, three of the walls being entirely of glass and giving on to broad verandahs, and here the patients, though sheltered, enjoy the open air. A large portion of the glass framework is on hinges and can be opened so that the air has free access to the dining room. Nevertheless, and for semi-outdoor treatment, I much prefer the pavilion which I have already described when speaking of the Estaphania Hospital.[1] As this structure is of but one floor the entire length of the apex of the roof is open, a smaller roof being placed over the aperture to prevent the rain entering but leaving space for the passage of air. The flooring stands some distance off the ground which is covered with concrete and kept dry. The boards do not touch each other so that air enters between each board and for the whole length of the ward. Then there are all round windows and doors giving on to a terrace and verandah. Thus air gains access to the patients from all directions, yet they are sheltered from rain and the sun. At the hospital for tuberculosis the dirty linen is not carried out of the wards and down the stairs but is dropped into a shaft, where it falls into a metallic receptacle placed at the bottom. This receptacle stands on wheels, so that it can be readily conveyed to the laundry or the disinfecting station, which are not far away. The dust, the sweepings, and the refuse are also placed in closed metallic receptacles and wheeled away to be destroyed in the furnace or used as manure. At the disinfection station there is a bath for the employees. Policemen, cabmen, ambulance men, and others who assist to bring patients are all bathed, and their clothes are disinfected before they are allowed to return to town. The homes of tuberculous patients are also disinfected by the authorities and this is done gratuitously for the poor.

By far the largest hospital at Lisbon is next door to the new medical schools which were inaugurated by the Fifteenth International Congress of Medicine. A large portion of this building was originally a convent, and outside the main entrance there still remain 12 fine statues of the Apostles. Inside a majestic staircase and hall are ornamented with Portuguese delf tiles which represent hunting scenes, while the roof is painted with beautiful fruit and flowers. These topics can scarcely be considered suitable either for a convent or for a hospital, yet they have been recently restored and convey an impression of grandeur which, in any case, is a pleasant variation of what is usually seen at hospitals. From

nature of the gathering ground it is largely influenced by the method and thoroughness of filtration. While the nature of the gathering ground cannot be altered, Dr. Jenkins thinks that much might be done to lessen the discolouration by rejecting the first water after a drought by means of the by-wash. The principal reservoir has a capacity for 200,000,000 gallons and during its formation the peat naturally present in the soil of the upper portion was not, it appears, thoroughly removed. Dr. Jenkins is evidently of opinion that if the mechanical filtration were supplemented by filtration through sand there would be much less cause for complaint. It is unsatisfactory to find that on the occasion of one of his visits to the waterworks the water was being supplied without undergoing any form of filtration at all. The district council ought to have no difficulty in requiring a proper supply to be given, for in the Act of Parliament under which the company secured the right of supply it is provided that the water shall not only be pure and wholesome but that it shall be "efficiently filtered." But since the beginning of the present year a portion of the supply has been affected in another direction. It has been found to have a distinctly plumbo-solvent action. A year ago there was not known to exist in the Rhondda valleys a single case of lead poisoning attributable to water-borne lead, while at the present time there are under observation by the medical men in the district at least a dozen cases, some of them exhibiting severe symptoms of paralysis. The localities principally affected are those in the lower part of the great valley. The quantity of lead present in the water distributed there and which had been in contact for several hours with the lead service pipes varied from 1 to 5·2 parts per million. Early in June the inhabitants were warned by placards to abstain from drinking water after it had stood in the lead service pipe, especially that first drawn in the morning, and were advised to draw off at least a gallon before using a supply for cooking or drinking. This latter suggestion has called forth a protest from the water company on the ground that if it is followed there will be a waste of water.

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[1] See THE LANCET, April 21st, 1906, p. 1132.

Schools and Infectious Diseases in Gloucestershire.

In the annual report of the medical officer of health of Gloucestershire Dr. J. Middleton Martin states that the work of district councils in dealing with infectious diseases is increased by the aggregation of children in schools. During epidemics, more especially of diphtheria, the usual public health staff is inadequate to meet the outbreaks if they are to be controlled as it is now known they can be controlled. Emphasis is given to this opinion by an account of two distinct outbreaks of diphtheria which occurred in different parts of the county during 1905, and which were dealt with on different lines. In one outbreak, which occurred in the Thornbury rural district, material from the throats and noses of all the school children—372 in number—was examined bacteriologically, when it was found that in 75 per cent. there was present either the Klebs-Löffler bacillus or a highly suspicious organism closely related to it. In 21 per cent. of the children the bacillus was found in the nose only. The schools were kept open, and during three weeks the throats and noses of all the children were sprayed by the local medical practitioner and the disease was stamped out. The second outbreak was in the Lydney rural district and lasted from the end of 1904 to the beginning of the present year. It was not found possible to carry out the very complete measures which were adopted in the case of the Thornbury outbreak, and the closing of the schools is said to have been quite ineffectual in checking the progress of the disease.

An Unusual Case under the Workmen's Compensation Act.

At the Plymouth county court on August 15th, before his honour Judge Lush-Wilson, K.C., the relatives of a labourer claimed £156 from the proprietor of a quarry at Saltash. Evidence showed that the deceased, who had worked for the defendant for a month, injured his thumb; he remained at home for a week, then resumed his employment, and next day tetanus set in which proved fatal. Medical attention was not procured until tetanus supervened. It was stated that a few days after the accident the deceased had a scuffle with another man when both fell down. His honour, in awarding the relatives £40 compensation, said he held there was sufficient proof that death was the result of the accident.

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Some three or four years ago certain oyster beds at Falmouth were condemned as being contaminated with sewage, and the seizure recently of a large quantity of oysters by the metropolitan authorities has again drawn local attention to the matter. It is only oysters which come from certain areas of the Falmouth district which are contaminated; Helford, St. Mawes, and St. Just areas are perfectly pure, and oysters are sent from there to many parts of the country where they are received without question. The only method of relieving the present state of affairs is to compel all the local authorities whose sewage pollutes the waters and the beds to remove the source of contamination. This is a large undertaking but it will have to be considered.

August 21st.

SCOTLAND.

(From our own Correspondents.)

The Condition of Flock Beds.

During the last two months Dr. R. M. Buchanan, the bacteriologist to the corporation of Glasgow, has examined nine samples of bed-flock which he received from the sanitary inspector. Experimental tests were also undertaken with new flock beds direct from the warehouse and with flock beds which had been in use for some time. For the latter purpose six houses were visited in the east end of the city. The general result of the investigations has served once more to demonstrate that flock, especially of the cheaper qualities, has a bacterial flora indicating an extreme degree of filthiness.

The Natives of St. Kilda and Vaccination.

The inhabitants of the island of St. Kilda, who for so many months of the year are isolated from the rest of the world, evidently do not appreciate the advantages of vaccination. Dr. Johnston of the Local Government Board visited the island this month with a view to vaccinating the natives and found that the operation was not looked upon with favour. About 60 per cent of the community, however, were successfully vaccinated. Some younger citizens tried to get out of the ordeal by saying that such an operation would disable them for the Fulmac catching season which was near at hand. The able-bodied of those vaccinated are discussing the likelihood of being compensated for loss of time incurred through their compliance. The reason why so many of the inhabitants have not previously been vaccinated is that there is no resident medical man on the island. The last steamer to call at the island for this season leaves at the end of this month, and from that date until the spring of next year there will be no communication between the island and the mainland.

Nairn's New Hospital.

The new Town and County Hospital buildings at Nairn were opened last week by Earl Cawdor. These buildings and site, costing in all £5500, are the munificent gifts of Mr. Alexander Mann of Guayaquil, South America, who is a native of Nairn. The history of the hospital is that as far back as 1842 a scheme was set on foot for providing hospital accommodation for the town and county of Nairn, and in 1846 the hospital was built at a cost of £900. A vast amount of good has been done by this hospital during the past years, but it has not now sufficient accommodation to meet the requirements of the district. In making his gift Mr. Mann has stipulated that his name shall be inscribed nowhere inside the building. At the close of the opening ceremony a message was sent to Mr. Mann by those present expressing their gratitude for his generosity and undertaking that the hospital would be efficiently maintained. Immediately afterwards a three days' bazaar was opened in the public hall in aid of the furnishing and equipment of the new buildings. At the bazaar the total proceeds for the three days amounted to £1450.

The New Laboratories at the University of Glasgow.

The new laboratories in connexion with the chairs of physiology, materia medica, and forensic medicine and public health, which are being erected at a cost of £60,000, are now approaching completion, and it is expected that they will be opened in the spring of next year by the Prince of Wales. The internal arrangement of the building for physiology has been a little delayed pending the appointment of a

Since the last-named date no fresh case of the disease has been reported from Jeddah and it is hoped that the epidemic is at an end. There have been in all 72 cases and the same number of deaths. In addition, one fatal case of the disease occurred at Oandirah, near Jeddah, and two fatal cases at Mecca. Both the Mecca cases were imported from Jeddah. The first was observed on June 7th in the person of a butcher's assistant who arrived at Mecca that day, was removed to hospital at once, and died the following day. The second was observed on July 10th; the patient had arrived from Jeddah that day and died in hospital the following day. No further case has been reported from Mecca. Should no others occur there the Holy City of the Moslems will have escaped as lightly this time as it did in 1897, 1898, and 1899, when it will be recalled plague made its appearance in Jeddah; in the first two of those years Mecca remained entirely free and in 1899 only two cases, both imported from Jeddah, were observed there.

It will be remarked that every case of plague reported in the present outbreak has been fatal. A considerable proportion have only been discovered after death and there has been much difficulty in finding the sick and removing them to hospital and in carrying out the other measures decreed. The population of Jeddah are for the most part uneducated and fanatical and they dread the measures taken by the sanitary authorities more than they do the disease itself. It is almost certain that many cases occurred which were never made known to the authorities. Ordinary feelings of humanity have yielded to this dread of European interference and dead bodies have been found in the streets, thrown out from unknown houses, in order that the latter might not be invaded by the physician and disinfector. In such circumstances there is a natural doubt as to whether the outbreak is really at an end, and the measures imposed against Jeddah are consequently still in force, although many more than the regulation ten days have elapsed since the last reported case.

The pilgrim season of next year has almost begun. The Moslem month of Redjeb, the first of the six months of pilgrimage, begins this year on August 20th. The Board of Health has already decreed a series of measures intended to prevent the infection attacking pilgrims arriving in the Hedjaz from other parts of the world. These measures (which may, however, be modified now that the outbreak appears to be at an end) may be summarised as follows. The Government has been asked to advance some £T.5000 to cover the cost of the measures and to send six medical men to Jeddah. The board has sent three disinfectors and six sanitary guards to that port, together with a supply of drugs, disinfectants, and plague serum. All pilgrims arriving at Jeddah will, after undergoing quarantine at the Abou-Saad lazaret, land at Ras-el-Assouad, a spot some 10 or 12 miles to the south of Jeddah, and will not communicate with the town, the local authorities being requested to provide camels and other means of transport to enable them to set out for Mecca as soon as they land. Goods will, in like manner, be despatched to the interior by way of Ras-el-Assouad. A sanitary post is to be established either at Haddé or Bahré, both of which are about half way between Jeddah and Mecca; pilgrims will undergo a medical visit here and any sick will be detained. On arriving at Mecca they will be subjected to another medical visit and to medical surveillance for five days "à domicile," so far as that may be practicable. This measure should not be so difficult of application as it appears at first sight, since the majority of pilgrims are lodged in registered lodging-houses. There must, however, be a considerable number of them who do not go to such houses and who sleep in the streets and open places, or in any corner where they can lay their heads. This scheme of measures is largely based on a similar scheme adopted in the three years mentioned above, when Jeddah was the scene of an outbreak such as the present one. Unfortunately it involves the entire avoidance of the town of Jeddah by the thousands of pilgrims from abroad, and as the townspeople of Jeddah largely depend for their existence upon what they are able to make out of these pilgrims there will be strong opposition to the measures upon their part. It will be recalled that such opposition led to serious riots in the years mentioned. It may be hoped, therefore, that the apparent subsidence of plague in Jeddah may prove to be real, and to admit of a modification of the measures in question in order to avoid the repetition of such riots. In the meantime efforts are being made to improve the sanitary state of the town, but upon this matter I shall hope to send you at an early date some further information from personal observations made during a stay in that interesting town.

The outbreak of plague in Trebizond was first made known here on August 8th. The first cases were seen by the health officer of that port on the afternoon of that day. He was asked by the authorities to visit some suspicious cases in the town prison, and he found three prisoners sick of the disease and the body of a fourth already dead. The details of the four cases were as follows:—

Case 1, aged 35 years, had arrived from Constantinople 28 days previously; he was said to have fallen ill on August 7th; the symptoms as described were those of an acute attack of plague, with a right inguinal bubo. He became comatose and died at midday on the 8th. The body presented no abnormal signs save the bubo and some large spots of ecchymosis.

Case 2, aged 22 years, in prison for eight months. He fell ill on the 7th, with the symptoms of plague and several enlarged glands in the left groin.

Case 3, aged 34 years, fell ill on the 6th, with similar symptoms; bubo in the groin of the size of a hen's egg.

Case 4, aged 28 years, also fell ill on the 6th, with almost identical symptoms; there were enlarged glands in the left groin and axilla.

Other cases have since occurred in the same prison and up to August 14th there had been in all eight cases with four deaths. The outbreak has so far been confined to the prison. This is apparently a large building, containing some 700 prisoners, and it is stated that in the room in which the first cases occurred, and which measures only some 60 square metres, no less than 72 prisoners were lodged. It is not easy or pleasant to imagine what the sanitary condition of such an institution must be. The Board of Health has urged the authorities to evacuate the building completely and to disinfect it thoroughly, no half measures being admissible in presence of such a "foyer" of disease. The origin of the infection is entirely unknown and it is remarkable that the disease has made its appearance in a prison. It is, however, stated that a mortality among rats had been observed in the prison for some ten days before any of the prisoners were attacked. No bacteriological inquiry has yet been made, but a bacteriologist has now been sent from Constantinople to make such inquiry. From the details already furnished there seems, however, to be little doubt that the outbreak is one of bubonic plague. So far as is known the nearest places to Trebizond where plague is now prevalent are the Persian province of Seistan on the one hand, and on the other the ports of Alexandria and Port Said.

In addition to the various measures (isolation, disinfection, &c.) that the Government authorities have been urged to take in the prison and town of Trebizond, the Board of Health has imposed a medical visit upon persons leaving the town by sea, a second medical visit, with disinfection and application of the rat-destruction regulations (the whole not to delay the ship more than 48 hours) in the lazaret of Sinope, and, for those passing the Bosphorus, a third medical visit at Kavak, at the northern end of the Bosphorus.

Constantinople, August 16th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Rhondda Water-supply.

THE unsatisfactory nature of the water-supply in one portion of the Rhondda valleys has been frequently commented on in THE LANCET. Until quite recently the only cause for complaint arose from the peaty discolouration of the water, and although attempts have been made by the water company to remove this condition they do not appear to have been successful. Five or six years ago the inside of the mains was thoroughly scraped and a large amount of deposit was removed. About the same time a set of mechanical filters was installed. These remedial measures only partially succeeded, and at the last meeting of the urban district council the medical officer of health (Dr. J. D. Jenkins) presented a report on the subject which disclosed a serious situation and such as the council can hardly ignore. The amount of discolouration in the water varies considerably, and although due primarily to the

nature of the gathering ground it is largely influenced by the method and thoroughness of filtration. While the nature of the gathering ground cannot be altered, Dr. Jenkins thinks that much might be done to lessen the discolouration by rejecting the first water after a drought by means of the by-wash. The principal reservoir has a capacity for 200,000,000 gallons and during its formation the peat naturally present in the soil of the upper portion was not, it appears, thoroughly removed. Dr. Jenkins is evidently of opinion that if the mechanical filtration were supplemented by filtration through sand there would be much less cause for complaint. It is unsatisfactory to find that on the occasion of one of his visits to the waterworks the water was being supplied without undergoing any form of filtration at all. The district council ought to have no difficulty in requiring a proper supply to be given, for in the Act of Parliament under which the company secured the right of supply it is provided that the water shall not only be pure and wholesome but that it shall be "efficiently filtered." But since the beginning of the present year a portion of the supply has been affected in another direction. It has been found to have a distinctly plumbo-solvent action. A year ago there was not known to exist in the Rhondda valleys a single case of lead poisoning attributable to water-borne lead, while at the present time there are under observation by the medical men in the district at least a dozen cases, some of them exhibiting severe symptoms of paralysis. The localities principally affected are those in the lower part of the great valley. The quantity of lead present in the water distributed there and which had been in contact for several hours with the lead service pipes varied from 1 to 5·2 parts per million. Early in June the inhabitants were warned by placards to abstain from drinking water after it had stood in the lead service pipe, especially that first drawn in the morning, and were advised to draw off at least a gallon before using a supply for cooking or drinking. This latter suggestion has called forth a protest from the water company on the ground that if it is followed there will be a waste of water.

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Since the last-named date no fresh case of the disease has been reported from Jeddah and it is hoped that the epidemic is at an end. There have been in all 72 cases and the same number of deaths. In addition, one fatal case of the disease occurred at Candirah, near Jeddah, and two fatal cases at Mecca. Both the Mecca cases were imported from Jeddah. The first was observed on June 7th in the person of a butcher's assistant who arrived at Mecca that day, was removed to hospital at once, and died the following day. The second was observed on July 10th; the patient had arrived from Jeddah that day and died in hospital the following day. No further case has been reported from Mecca. Should no others occur there the Holy City of the Moslems will have escaped as lightly this time as it did in 1897, 1898, and 1899, when it will be recalled plague made its appearance in Jeddah; in the first two of those years Mecca remained entirely free and in 1899 only two cases, both imported from Jeddah, were observed there.

It will be remarked that every case of plague reported in the present outbreak has been fatal. A considerable proportion have only been discovered after death and there has been much difficulty in finding the sick and removing them to hospital and in carrying out the other measures decreed. The population of Jeddah are for the most part uneducated and fanatical and they dread the measures taken by the sanitary authorities more than they do the disease itself. It is almost certain that many cases occurred which were never made known to the authorities. Ordinary feelings of humanity have yielded to this dread of European interference and dead bodies have been found in the streets, thrown out from unknown houses, in order that the latter might not be invaded by the physician and disinfector. In such circumstances there is a natural doubt as to whether the outbreak is really at an end, and the measures imposed against Jeddah are consequently still in force, although many more than the regulation ten days have elapsed since the last reported case.

The pilgrim season of next year has almost begun. The Moslem month of Redjeb, the first of the six months of pilgrimage, begins this year on August 20th. The Board of Health has already decreed a series of measures intended to prevent the infection attacking pilgrims arriving in the Hedjaz from other parts of the world. These measures (which may, however, be modified now that the outbreak appears to be at an end) may be summarised as follows. The Government has been asked to advance some £T.5000 to cover the cost of the measures and to send six medical men to Jeddah. The board has sent three disinfectors and six sanitary guards to that port, together with a supply of drugs, disinfectants, and plague serum. All pilgrims arriving at Jeddah will, after undergoing quarantine at the Abou-Saad lazaret, land at Ras-el-Assouad, a spot some 10 or 12 miles to the south of Jeddah, and will not communicate with the town, the local authorities being requested to provide camels and other means of transport to enable them to set out for Mecca as soon as they land. Goods will, in like manner, be despatched to the interior by way of Ras-el-Assouad. A sanitary post is to be established either at Haddé or Bahré, both of which are about half way between Jeddah and Mecca; pilgrims will undergo a medical visit here and any sick will be detained. On arriving at Mecca they will be subjected to another medical visit and to medical surveillance for five days "à domicile," so far as that may be practicable. This measure should not be so difficult of application as it appears at first sight, since the majority of pilgrims are lodged in registered lodging-houses. There must, however, be a considerable number of them who do not go to such houses and who sleep in the streets and open places, or in any corner where they can lay their heads. This scheme of measures is largely based on a similar scheme adopted in the three years mentioned above, when Jeddah was the scene of an outbreak such as the present one. Unfortunately it involves the entire avoidance of the town of Jeddah by the thousands of pilgrims from abroad, and as the townspeople of Jeddah largely depend for their existence upon what they are able to make out of these pilgrims there will be strong opposition to the measures upon their part. It will be recalled that such opposition led to serious riots in the years mentioned. It may be hoped, therefore, that the apparent subsidence of plague in Jeddah may prove to be real, and to admit of a modification of the measures in question in order to avoid the repetition of such riots. In the meantime efforts are being made to improve the sanitary state of the town, but upon this matter I shall hope to send you at an early date some further information from personal observations made during a stay in that interesting town.

The outbreak of plague in Trebizond was first made known here on August 8th. The first cases were seen by the health officer of that port on the afternoon of that day. He was asked by the authorities to visit some suspicious cases in the town prison, and he found three prisoners sick of the disease and the body of a fourth already dead. The details of the four cases were as follows:—

Case 1, aged 35 years, had arrived from Constantinople 28 days previously; he was said to have fallen ill on August 7th; the symptoms as described were those of an acute attack of plague, with a right inguinal bubo. He became comatose and died at midday on the 8th. The body presented no abnormal signs save the bubo and some large spots of ecchymosis.

Case 2, aged 22 years, in prison for eight months. He fell ill on the 7th, with the symptoms of plague and several enlarged glands in the left groin.

Case 3, aged 34 years, fell ill on the 6th, with similar symptoms; bubo in the groin of the size of a hen's egg.

Case 4, aged 28 years, also fell ill on the 6th, with almost identical symptoms; there were enlarged glands in the left groin and axilla.

Other cases have since occurred in the same prison and up to August 14th there had been in all eight cases with four deaths. The outbreak has so far been confined to the prison. This is apparently a large building, containing some 700 prisoners, and it is stated that in the room in which the first cases occurred, and which measures only some 60 square metres, no less than 72 prisoners were lodged. It is not easy or pleasant to imagine what the sanitary condition of such an institution must be. The Board of Health has urged the authorities to evacuate the building completely and to disinfect it thoroughly, no half measures being admissible in presence of such a "foyer" of disease. The origin of the infection is entirely unknown and it is remarkable that the disease has made its appearance in a prison. It is, however, stated that a mortality among rats had been observed in the prison for some ten days before any of the prisoners were attacked. No bacteriological inquiry has yet been made, but a bacteriologist has now been sent from Constantinople to make such inquiry. From the details already furnished there seems, however, to be little doubt that the outbreak is one of bubonic plague. So far as is known the nearest places to Trebizond where plague is now prevalent are the Persian province of Seistan on the one hand, and on the other the ports of Alexandria and Port Said.

In addition to the various measures (isolation, disinfection, &c.) that the Government authorities have been urged to take in the prison and town of Trebizond, the Board of Health has imposed a medical visit upon persons leaving the town by sea, a second medical visit, with disinfection and application of the rat-destruction regulations (the whole not to delay the ship more than 48 hours) in the lazaret of Sinope, and, for those passing the Bosphorus, a third medical visit at Kavak, at the northern end of the Bosphorus.

Constantinople, August 16th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Rhondda Water-supply.

THE unsatisfactory nature of the water-supply in one portion of the Rhondda valleys has been frequently commented on in THE LANCET. Until quite recently the only cause for complaint arose from the peaty discolouration of the water, and although attempts have been made by the water company to remove this condition they do not appear to have been successful. Five or six years ago the inside of the mains was thoroughly scraped and a large amount of deposit was removed. About the same time a set of mechanical filters was installed. These remedial measures only partially succeeded, and at the last meeting of the urban district council the medical officer of health (Dr. J. D. Jenkins) presented a report on the subject which disclosed a serious situation and such as the council can hardly ignore. The amount of discolouration in the water varies considerably, and although due primarily to the

nature of the gathering ground it is largely influenced by the method and thoroughness of filtration. While the nature of the gathering ground cannot be altered, Dr. Jenkins thinks that much might be done to lessen the discolouration by rejecting the first water after a drought by means of the by-wash. The principal reservoir has a capacity for 200,000,000 gallons and during its formation the peat naturally present in the soil of the upper portion was not, it appears, thoroughly removed. Dr. Jenkins is evidently of opinion that if the mechanical filtration were supplemented by filtration through sand there would be much less cause for complaint. It is unsatisfactory to find that on the occasion of one of his visits to the waterworks the water was being supplied without undergoing any form of filtration at all. The district council ought to have no difficulty in requiring a proper supply to be given, for in the Act of Parliament under which the company secured the right of supply it is provided that the water shall not only be pure and wholesome but that it shall be "efficiently filtered." But since the beginning of the present year a portion of the supply has been affected in another direction. It has been found to have a distinctly plumbo-solvent action. A year ago there was not known to exist in the Rhondda valleys a single case of lead poisoning attributable to water-borne lead, while at the present time there are under observation by the medical men in the district at least a dozen cases, some of them exhibiting severe symptoms of paralysis. The localities principally affected are those in the lower part of the great valley. The quantity of lead present in the water distributed there and which had been in contact for several hours with the lead service pipes varied from 1 to 5·2 parts per million. Early in June the inhabitants were warned by placards to abstain from drinking water after it had stood in the lead service pipe, especially that first drawn in the morning, and were advised to draw off at least a gallon before using a supply for cooking or drinking. This latter suggestion has called forth a protest from the water company on the ground that if it is followed there will be a waste of water.

Schools and Infectious Diseases in Gloucestershire.

In the annual report of the medical officer of health of Gloucestershire Dr. J. Middleton Martin states that the work of district councils in dealing with infectious diseases is increased by the aggregation of children in schools. During epidemics, more especially of diphtheria, the usual public health staff is inadequate to meet the outbreaks if they are to be controlled as it is now known they can be controlled. Emphasis is given to this opinion by an account of two distinct outbreaks of diphtheria which occurred in different parts of the county during 1905, and which were dealt with on different lines. In one outbreak, which occurred in the Thornbury rural district, material from the throats and noses of all the school children—372 in number—was examined bacteriologically, when it was found that in 75 per cent. there was present either the Klebs-Löffler bacillus or a highly suspicious organism closely related to it. In 21 per cent. of the children the bacillus was found in the nose only. The schools were kept open, and during three weeks the throats and noses of all the children were sprayed by the local medical practitioner and the disease was stamped out. The second outbreak was in the Lydney rural district and lasted from the end of 1904 to the beginning of the present year. It was not found possible to carry out the very complete measures which were adopted in the case of the Thornbury outbreak, and the closing of the schools is said to have been quite ineffectual in checking the progress of the disease.

An Unusual Case under the Workmen's Compensation Act.

At the Plymouth county court on August 15th, before his honour Judge Lush-Wilson, K.C., the relatives of a labourer claimed £156 from the proprietor of a quarry at Saltash. Evidence showed that the deceased, who had worked for the defendant for a month, injured his thumb; he remained at home for a week, then resumed his employment, and next day tetanus set in which proved fatal. Medical attention was not procured until tetanus supervened. It was stated that a few days after the accident the deceased had a scuffle with another man when both fell down. His honour, in awarding the relatives £40 compensation, said he held there was sufficient proof that death was the result of the accident.

Falmouth Oysters and Contamination.

Some three or four years ago certain oyster beds at Falmouth were condemned as being contaminated with sewage, and the seizure recently of a large quantity of oysters by the metropolitan authorities has again drawn local attention to the matter. It is only oysters which come from certain areas of the Falmouth district which are contaminated; Helford, St. Mawes, and St. Just areas are perfectly pure, and oysters are sent from there to many parts of the country where they are received without question. The only method of relieving the present state of affairs is to compel all the local authorities whose sewage pollutes the waters and the beds to remove the source of contamination. This is a large undertaking but it will have to be considered.

August 21st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Condition of Flock Beds.

DURING the last two months Dr. R. M. Buchanan, the bacteriologist to the corporation of Glasgow, has examined nine samples of bed-flock which he received from the sanitary inspector. Experimental tests were also undertaken with new flock beds direct from the warehouse and with flock beds which had been in use for some time. For the latter purpose six houses were visited in the east end of the city. The general result of the investigations has served once more to demonstrate that flock, especially of the cheaper qualities, has a bacterial flora indicating an extreme degree of filthiness.

The Natives of St. Kilda and Vaccination.

The inhabitants of the island of St. Kilda, who for so many months of the year are isolated from the rest of the world, evidently do not appreciate the advantages of vaccination. Dr. Johnston of the Local Government Board visited the island this month with a view to vaccinating the natives and found that the operation was not looked upon with favour. About 60 per cent of the community, however, were successfully vaccinated. Some younger citizens tried to get out of the ordeal by saying that such an operation would disable them for the Fulmac catching season which was near at hand. The able-bodied of those vaccinated are discussing the likelihood of being compensated for loss of time incurred through their compliance. The reason why so many of the inhabitants have not previously been vaccinated is that there is no resident medical man on the island. The last steamer to call at the island for this season leaves at the end of this month, and from that date until the spring of next year there will be no communication between the island and the mainland.

Nairn's New Hospital.

The new Town and County Hospital buildings at Nairn were opened last week by Earl Cawdor. These buildings and site, costing in all £5500, are the munificent gifts of Mr. Alexander Mann of Guayaquil, South America, who is a native of Nairn. The history of the hospital is that as far back as 1842 a scheme was set on foot for providing hospital accommodation for the town and county of Nairn, and in 1846 the hospital was built at a cost of £900. A vast amount of good has been done by this hospital during the past years, but it has not now sufficient accommodation to meet the requirements of the district. In making his gift Mr. Mann has stipulated that his name shall be inscribed nowhere inside the building. At the close of the opening ceremony a message was sent to Mr. Mann by those present expressing their gratitude for his generosity and undertaking that the hospital would be efficiently maintained. Immediately afterwards a three days' bazaar was opened in the public hall in aid of the furnishing and equipment of the new buildings. At the bazaar the total proceeds for the three days amounted to £1450.

The New Laboratories at the University of Glasgow.

The new laboratories in connexion with the chairs of physiology, materia medica, and forensic medicine and public health, which are being erected at a cost of £60,000, are now approaching completion, and it is expected that they will be opened in the spring of next year by the Prince of Wales. The internal arrangement of the building for physiology has been a little delayed pending the appointment of a

new professor to the chair, but now that Professor D. Noel Paton has been appointed his views on the matter will be able to be ascertained and there is not likely to be any further delay. The opening of the new laboratory for natural philosophy has rendered it possible to hold for the first time this summer a practical class in physics for medical students. This class was not made compulsory, but it was found that almost every student who had entered for the lectures also took out the practical class.

August 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Typhoid Fever in Belfast.

AT a meeting of the public health committee of Belfast held on August 18th it was reported, as many of your readers may know, that cases of typhoid fever had occurred in the southern part of the city, and instructions were given for the energetic prosecution of investigations to trace the origin of the disease. The outbreak has occurred in Adelaide Park, Cadogan Park, and the neighbouring residential district for the well-to-do classes. It is hoped that the cause of this outbreak, whether milk, water, or defective drains, will be found out promptly, for at present, it will be remembered, Belfast, being without a medical superintendent officer of health, is not in a favourable position to withstand an epidemic.

Fire at the Throne Hospital, Belfast.

On Saturday last, August 18th, a fire, which is believed to have had its origin in a faulty chimney, broke out in the children's wing of the Throne Hospital, the convalescent institution connected with the Royal Victoria Hospital, which is situated about four miles from Belfast. The city fire brigade was at once summoned, while all the children were safely removed. Fortunately, after some hard work by the brigade the risk of the fire destroying the whole building was overcome and the damage was limited to the children's wing. The roof of this was completely destroyed, while the fabric was very much injured by fire, smoke, and water. Thanks to the efforts of the salvage corps the beds, bedding, and other articles of furniture were saved. The little patients, who were transferred to another portion of the building, have proved to be none the worse for their adventure. The loss is covered to a certain extent by insurance.

Tuberculosis in Pork.

A meeting of the city council of Belfast in committee was held on Monday last, August 20th, to consider the question of dealing with tuberculosis in pork. On July 28th the market committee passed, after long consideration, the following proposition:—

> That in all well-nourished carcasses of pigs, where the tuberculosis is strictly confined to the glands of the neck, the head only, or such portion as is affected by the disease, shall be destroyed, the remainder of the carcass being handed back to the owner, and that in the case of all carcasses showing unmistakeable evidence of the disease having become generalised—i.e., two or more organs affected—the whole of every such carcass shall be destroyed.

When the matter came before the city council at the beginning of August it was decided to refer the subject to the market committee, which, after careful consideration of all the facts, reaffirmed its resolution. On August 20th this was reported to the council in committee, called specially to receive the market committee's report, and after considerable discussion the market committee's resolution was adopted by a majority of two. An amendment to adjourn the matter for a month for the market committee to obtain expert evidence on the whole question in the interval was lost.

The late Mr. G. L. B. Stoney, L.R.C.P., L.R.C.S. Irel.

Mr. Stoney died at his residence, Lucan, co. Dublin, on August 8th. For the last 30 years he was well known and highly esteemed in the district, while he made many friends among the visitors who stay at the Hydropathic Hotel and ink the sulphur spa water. He was the author of the port on the Lucan Spas, and Lucan as a Health Resort," a great deal to make the place popular. He was ficer of the Lucan Dispensary district.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Alcoholism in France.

IF we may judge of the progress of alcoholism in France by the increase in the number of public-houses the result gives very little encouragement to those who are striving against the alcohol plague. As a matter of fact, the number of public-houses continues to increase and alcoholism increases *pari passu*. In 1904 there were 468,434 places for the sale of alcohol open. In 1905 the number had increased to 473,593.

A Curative Product Derived from Tuberculinine.

At a meeting of the Academy of Sciences held on August 6th M. Baudran read a paper wherein he said that being convinced that the bacillus tuberculosis contains a toxic body of alkaloidal nature, to which he has given the name tuberculinine, he had been enabled to isolate this body in a crystalline state and from it to obtain a substance possessing curative properties. He treated tuberculinine with permanganate of calcium and then injected it into healthy guinea-pigs in doses of 0·0008 of a gramme. The guinea-pigs died within a period of from eight to 15 days after the injection. M. Baudran was thus enabled to obtain an antitoxin which injected in doses of one cubic centimetre as a preventive 12 hours before an injection of tuberculinine in healthy guinea-pigs enabled them to receive on the following day a fatal dose of tuberculinine without dying. With regard to the curative properties of this substance encouraging experiments had been made upon both guinea-pigs and bovine animals. Moreover, M. Baudran had observed upon himself that subcutaneous injections of the antitoxin were painless and did not cause any rise of temperature or any other trouble even when the injections were continued for several weeks.

The Paris Hospitals.

For the last year many works have been undertaken at the Paris hospitals. In two of the hospitals these works have come to an end and the new buildings are in working order. At the Lariboisière Hospital great enlargements have been carried out. A new block has been built, altogether reserved for medical and surgical consultation. New operation theatres have been built, all the kitchens have been reconstructed, and a model laundry has also been put up. In the new consulting rooms the angles are all rounded off; the floor is tiled and the walls are varnished. Besides rooms for ordinary medical and surgical work special departments have been erected for electro-therapy, oto-rhino-laryngology, and ophthalmology. In the laundry the dirty linen is disinfected, washed, dried, and done up mechanically. At the St. Antoine Hospital the work carried out has cost about 2,000,000 francs and the hospital will in future be able to provide for nearly 1000 patients in lieu of 800 as formerly. Large consulting rooms have been built upon a new style. The patients undress in a separate room before going into the physician's room and they are examined separately. A magnificent building has been put up for the staff. Finally, the Andral Hospital having been done away with has been replaced by Bastion 27, which has been arranged as an ordinary hospital.

The Expenses of Justice.

The Director of Criminal Prosecutions desiring to diminish the expenses of legal proceedings has just sent out a circular to *procureurs généraux* pointing out various petty economics which they could carry out. Naturally, most of these small economies are directed against medical men. As it is, the fees paid to medical men for the loss of their time are laughable, so much so that in numerous small towns there is great difficulty in finding any medical man who will take up the work of a medical expert; and now, apparently, even the small sums paid to such experts are going to be diminished. In cases of misdemeanour, for instance, the fee for a medical report will only be 5 francs. Experts in mental diseases cannot be summoned unless there is some presumptive evidence of intellectual trouble or if they are demanded by counsel, who must justify the necessity of calling in such evidence. Laboratory expenses for chemical analysis are also to be reduced as much as possible. The circular puts forward a desire that in workmen's compensation cases a maximum sum should be laid down for a fee, in h cases as have no exceptional character. In trials ried out *in formâ pauperis* the circular requests that all dical men in place of coming themselves to court to give ir report should send this by post to the president of the urt. This measure is not a very happily conceived one, often it happens that objection is taken to the evidence the medical men and in this case there will be no oppor- ity of hearing their answers to such objections.

ugust 20th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Serum Treatment of Puerperal Fever.

Professor Martin of Greifswald, writing to the *Berliner 'inische Wochenschrift*, says that of the two modern prin- ples of treating puerperal fever—namely, by surgical ethods and by injections of antitoxin—the former is avail- le only in clinics and hospitals, whilst the latter may be rried out by any practitioner. Opinions, however, differ eatly as to the efficacy of serum treatment owing to the ant of a satisfactory system of comparing cases. Professor artin has endeavoured to arrive at a definite result by bulating the incidence of pyrexia in puerperal patients cording as they were treated with or without serum. e said that since June 1st, 1905, all cases of ierperal fever under his care have been treated by ntitoxin and he compares the cases which occurred from at date till June 1st, 1906, with the corresponding numbers the previous year when serum treatment was not yet in se. In the administration of the antitoxin 20 cubic centi- etres were injected when the rectal temperature was igher than 38·5° C.; if the temperature was over 38° C. n the following day a second injection and perhaps even a hird injection were given. When the temperature did not all another series of injections was begun on the sixth day. he statistical tables compiled by Professor Martin show that emperatures from 38·5° to 38·9° were attained in 25·6 per ent. of the cases treated without serum and in 28 per cent. f those treated with serum; temperatures from 39° to 39·4° ere attained in 23 per cent. of those treated without serum nd in 32 per cent. of those treated with serum; temperatures rom 39·5° to 39 9° were attained in 20·5 per cent. of those reated without serum and in 24 per cent. of those treated with erum; temperatures from 40° to 40·4° were attained in 23·5 er cent. of those treated without serum and in 8 per cent. of hose treated with serum; and temperatures from 40·5° to 1° were attained in 7·6 per cent. of those treated without erum and 8 per cent. of those treated with serum. Tem- eratures over 40°, therefore, occurred in 31 per cent. of the ases treated without serum but in only 16 per cent. of those reated with it; in the latter the pyrexia was also of shorter uration. Professor Martin therefore recommends that erum treatment should be employed in every case.

The Comparative Frequency of Appendicitis in Men and in Women.

The above question is discussed by Dr. Karrenstein of Altona in the *Deutsche Medizinische Wochenschrift*. In the surgical text-books appendicitis is said to be much more frequent in the male than in the female sex, the proportion varying according to the different statistics from 74 *to* 53 per cent. for males. Dr. Karrenstein, however, maintains that false conclusions have been drawn from the facts. As the statistics are based on hospital cases and as men are admitted to hospitals in much greater numbers than women it is obvious that more men must be treated for appendicitis than women. It was not the absolute number but the frequency of appendicitis in each 1000 men and 1000 women that should be compared. When this was done it was found that in Berlin the numbers of men and women suffering from appendicitis were nearly equal and that in 1899 even more women than men were received, the proportions being 2·99 per 1000 men and 4·20 per 1000 women. In Hamburg a considerable and permanent preponderance of appendicitis in the female sex was found to exist.

The University of Greifswald.

The University of Greifswald in Pomerania lately celebrated its 450th anniversary with great display. Prince August Wilhelm, representing the Emperor, the Minister of Education, and many representatives of the authorities attended the proceedings, which began with Divine service in the cathedral. At a formal meeting of the four faculties, presided over by the rector, Professor Bonet, and in the presence of many official personages and visitors, honorary degrees were conferred on several men of science. The recipients of the honorary degree of M.D. included Professor William Keen of Philadelphia, Professor Roux of the Pasteur Institute at Paris, and Professor Snellen of Utrecht. Considerable sums have been placed at the disposal of the University by some wealthy families of Pomerania for the purpose of providing the university clinics with means for scientific research and for the reception of indigent patients. A special number, consisting exclusively of articles contributed by members of the Greifswald Medical Faculty, has been issued by the *Deutsche Medizinische Wochenschrift*.

Practical Joking by Students.

A paragraph was lately inserted in some daily newspapers to the effect that the medical students of the University of Göttingen had passed a resolution condemning vivisection. It was said in the resolution that vivisection was censurable from the ethical and moral point of view, that it demoralised the teachers as well as the students, and that the students assembled in meeting declined to attend the lectures on physiology and pharmacology as long as experiments on animals were performed. This report caused a great sensation and received the hearty approval of the adherents of "natural" medicine, antivivisectionists, and so on, but their joy was short-lived, for it soon became known that a party of medical students, exhilarated by good German beer, had constituted themselves an antivivisectionists' committee, and that the report of the proceedings at the alleged meeting was the product of their imagination.

August 20th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Recent Illness of the Sultan.

ALL sorts of alarming rumours concerning the recent illness of the Sultan have been circulating in the Ottoman metropolis and doubtless have found their counterpart elsewhere. Last Friday, when Abdul Hamid did not appear to perform the traditional religious ceremony of the so-called Selamlik, it was said that he was already dead, some affirming their knowledge that he was poisoned, having fallen a victim to a palace revolution. The cause of these extraordinary false rumours is the great secrecy which surrounds all things concerning Yildiz-Kiosk, and especially the person of the Sultan. The fact that the Padishah did not attend the Friday Selamlik ceremony was certainly an unusual occurrence, it being the first time during the long reign of Abdul Hamid that this religious military pageant was dispensed with, and no explanation for the departure was too violent for the imagination. The facts concerning the Sultan's illness are as follows and I believe that I have gathered them from trustworthy sources. Abdul Hamid suffers from a chronic enlargement of the prostate gland with all the consequent train of symptoms associated with this malady. As he is over 60 years of age it is not surprising that sometimes these symptoms become more acute. The first manifestations of the condition began to trouble the Sultan about ten years ago, when a German surgeon who was called in recommended operative treatment. The Sultan, however, declined to submit to operation and it is very doubtful if he would be of a different opinion now if Professor Bergman comes to Constantinople, as is stated to be probable. In the meantime the Sultan is undoubtedly better and the chief chamberlain has made a formal announcement that he has *completely recovered* (the italics are mine).

The Civil Medical School at Damascus.

This school was founded three years ago and is doing good work. It contains at present 102 students of whom more than half are studying the practice of medicine. The remainder devote their time particularly to chemistry. The last summer examinations have been brought to a close some days ago. It is intended to enlarge the buildings of the school as the number of students is steadily increasing.

A Laboratory of Chemical Analysis.

It is intended to erect at the prefecture of the capital who had been treating the case ever since. It was submitted that the plaintiff's charges were well within what was regarded as the reasonable scale. Judging from the number of medical witnesses called in the case it would seem that although the defence relied upon the alleged agreement between Dr. Borghetti and the patient's mother a suggestion of improper treatment was likely to be made. The magistrate, in giving his decision in favour of the plaintiff, stated that the operations had been skilfully performed and that the fees charged were moderate.

The New Zealand Meat Trade.

The recent disclosures with regard to the conditions under which the export trade of meat is conducted in America have, it appears, drawn attention to the methods of inspection and surveillance which are exercised over such matters in this colony and the Commonwealth of Australia. This, I am certain, can only tend to the benefit of New Zealand. There is no country in the world where greater care and more scientific skill are employed in the inspection of meat and butter than obtain in this colony. Every carcass is examined by a properly qualified veterinary surgeon and must bear his stamp before the meat can leave the factory. There is every inducement to be honest and none to act otherwise, as compensation is paid to the owners of all condemned stock. At most of the stock sales an inspector is present, but it is upon the post-mortem examination that the certificate depends. Attached to all the meat-exporting companies' works is a Government veterinarian whose sole duty is to examine each animal as it is killed.

Various Items of News.

The Government of New Zealand has invited the various health officers of the Commonwealth to hold their projected conference on inter-State and inter-Colonial quarantine in Christchurch during the time the exhibition is open.—There has been a very regrettable falling off in the number of children vaccinated during the last year. Of those born during that period only about 10 per cent. have been protected. Only the presence of a case of small-pox within the colony will serve to bring the people to a proper sense of the danger.—The campaign against tuberculosis proceeds amain. The hospital boards throughout the colony are gradually seeing the necessity of putting up open-air shelters for receiving not only the curable cases but also that greatest of menaces to the commonweal—the indigent incurable. The latest to undertake this good work is the Thames Hospital Board. The district to which this board ministers is mainly devoted to gold-mining and in consequence there are a great number of men suffering from fibroid tuberculosis and other lung troubles.—A very exhaustive Food and Drugs Bill is to form one of the measures to be dealt with by Parliament next session.

Wellington, July 18th.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Karl Kisskalt has been recognised as *privat-docent* of Hygiene.—*Bologna:* Dr. Carlo Comba has been appointed Extraordinary Professor of Children's Diseases.—*Cracow:* Dr. Valerian Jaworski has been promoted to the chair of Clinical Medicine in succession to the late Dr. Korczynski. Dr. Franz Krzysztalowicz, *privat-docent* of Dermatology and Syphilis, has been granted the rank of Extraordinary Professor.—*Gratz:* The rank of Extraordinary Professor has been granted to Dr. Theodor Pfeiffer, *privat-docent* of Internal Medicine.—*Greifswald*: Dr. Karl Ritter, *privat-docent* of Surgery; Dr. Philipp Jung, *privat-docent* of Midwifery and Gynæcology; and Dr. Hermann Schroeder, *privat-docent* of Odontology, have been granted the title of Professor; and Dr. Ernst Schultze, Extraordinary Professor in the Medical Faculty, has been promoted to Ordinary Professor.—*Heidelberg:* Dr. Sarwey of Tübingen has been appointed to the chair of Midwifery and Gynæcology in succession to Dr. Schatz. Dr. Narath of Utrecht has been appointed Professor of Clinical Surgery in succession to Dr. Czerny, resigned.—*Königsberg:* Dr. Wrede has been recognised as *privat-docent* of Surgery.—*Marburg:* Dr. H. Vogt has been recognised as *privat-docent* of Internal Medicine.—*Munich:* Dr. Richard Trommsdorff has been recognised as *privat docent* of Hygiene.—*Naples:* Dr. Rocco Caminiti has been recognised as *privat-docent* of External Pathology.—*Odessa:* Dr. N. Gamaleia has been recognised as *privat-docent* of Bacteriology.—*Padua:* Dr. Giuseppe Favaro has been recognised as *privat-docent* of Anatomy.—*Pavia:* Dr. Umberto Mantegazza has been appointed Professor of Dermatology and Syphiligraphy.—*Rome:* Dr. Giovanni Loriga has been recognised as *privat-docent* of Hygiene.—*Strasburg:* Dr. Ernst Münch has been granted the title of Professor.—*Tübingen:* Dr. Curschmann has been recognised as *privat-docent* of Internal Medicine; Dr. Bonhoeffer of Breslau has been offered the post of Director of the Clinic of Mental Diseases; and Dr. Conrad Sick has been recognised as *privat-docent* of Internal Medicine.—*Zürich:* Dr. H. Bluntschli has been recognised as *privat-docent* of Pathological Anatomy.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Castiaux, professor of forensic medicine in the University of Lille.—Dr. A. Vincent, formerly professor of hygiene in the University of Geneva, and Vice-President of the International Conference on the Revision of the Geneva Convention.—Dr. A. Kliarevski, formerly professor of medical physics in the University of Kieff.—Dr. A. Peride, professor of anatomy in the University of Jassy.—Dr. W. D. Bullard, assistant professor of surgery in the New York Post-Graduate School.

SOCIETY OF APOTHECARIES OF LONDON.—At a meeting of the Court of Assistants held at the Society's Hall, Blackfriars, on August 14th, Mr. E. Parker Young, M.R.C.S. Eng., L.S.A., was chosen as Master, and Mr. George Wilks, M.B., M.R.C.S. Eng., L.S.A., and Mr. F. Gordon Brown, M.R.C.S. Eng., L.S.A., surgeon to the City of London police, were elected respectively as Senior and Junior Wardens for the ensuing year. The customary votes of thanks were given to the out-going Master, Surgeon-General J. H. Jeffcoat, and the Wardens. The court unanimously resolved that the Freedom of the Society should be conferred upon Alderman T. B. Crosby.

COOKERY AND FOOD EXHIBITION.—The Seventeenth Universal Cookery and Food Exhibition is to be held at the Royal Horticultural Hall, Vincent-square, Westminster, from Nov. 27th to Dec. 1st. The exhibition is under the immediate patronage of Her Majesty the Queen and the exhibits are divided into 13 sections. Among these sections are those dealing with foods and food products, elementary cookery as taught in schools, household cookery, invalid cookery, navy and army cookery, a section dealing with bread, and a currant cookery competition. In the elementary cookery section there will be a series of children's competitions open to pupils attending cookery classes in elementary schools, and the competition will consist of suitable dishes for artisans and other simple households. Section 13 consists of competitions to be held in the model kitchen. There are to be competitions in grilling, cooking potatoes, making salads, and making omelettes, but we regret to see no competition for the boiling of plain rice. Plain boiled rice is an excellent substitute for other vegetables with ordinary meat but it is exceedingly rare to get it really well cooked, and we hope that the committee will see its way to adding this competition to those already offered.

THE LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—His Majesty the King of the Belgians has repeatedly expressed his appreciation of the work done by the Liverpool School of Tropical Medicine for the improvement of health in the tropics. He has especially taken a deep interest in the investigations into sleeping sickness which the school carried out in the Congo Free State for over three years, when the late Dr. J. E. Dutton so lamentably lost his life owing to contracting a very dangerous disease in the investigation of its causes. The school has continued without intermission to prosecute its researches into sleeping sickness and other tropical diseases and His Majesty has kindly invited the chairman, Sir Alfred Jones, K.C.M.G., to present to him at a luncheon at the Palace at Brussels the leading workers of the school on Thursday next. The professor of tropical medicine, the chairman of the professional committee, the Walter Myers lecturer, the director of tropical research at the laboratories at Runcorn, the dean of the school, and several others will, it is hoped, be present. In view of the generous financial support that the King has already given to the school this further courteous token of recognition of the work of the school and especially of the young men of science who risk their lives for humanity is much appreciated and the interview will stimulate still further the energies of the school.

NORTH DEVON INFIRMARY, BARNSTAPLE.—The recent appeal made by Lord Fortescue (Lord Lieutenant of Devon) on behalf of the £4000 required for the renovation of the North Devon Infirmary, Barnstaple, has been very satisfactory and it is now assured that the sum required will be raised.

BRISTOL ROYAL INFIRMARY.—The half-yearly meeting of the governors of this institution was held on August 13th under the presidency of Sir George White. The medical report stated that for the six months ended June 30th last the in-patients numbered 1755, against 1733 for the corresponding period of 1905. 19,598 out-patients were treated, compared with 17,315 for the first half year of 1905. The financial statement showed that the income for the half year was £9346 and the expenditure £9334, leaving a favourable balance of £12. Sir George White alluded to the plans which have been made for the erection of a new out-patient department on a suitable site facing the infirmary. The chairman added that £46,099 had been received towards the "£50,000 Fund" which was required for the purpose of improvements in the institution and appealed to the citizens of Bristol to raise the deficiency of £3901 which is still required.

DONATIONS AND BEQUESTS.—By the will of Mr. W. Rae, of Northampton, L.R.C.P. Edin., M.R.C.S. Eng., £5000 are left to Northampton Town and County Institute for Trained Nurses; £2000 to Northampton County Hospital; £500 each to Northampton Royal Victoria Dispensary and Weston Favell Convalescent Home; £250 each to Northampton Institute for the Blind, St. John Ambulance Association, and Good Samaritan Society; and the residue of his estate, probably about £12 000, to the Institute for Trained Nurses. —A donation of £1000 has been received from Lord Howard de Walden for the emergency fund of Charing Cross Hospital. —The executors of the late Mrs. Hannah Finnie have contributed £1000 to the Royal National Hospital for Consumption at Ventnor for the endowment of a bed to be named "The Hannah Finnie Memorial"; and the Royal Dental Hospital of London, Leicester-square, has received £500 from the executors, with the stipulation that the amount be invested and the income therefrom applied for the objects of the hospital.

DOLGELLY ISOLATION HOSPITAL.—The question of erecting an isolation hospital was further considered by the Dolgelly urban and rural district councils on August 17th and 18th. At the former meeting a letter was read from Mrs. Vaughan who had offered three months ago to provide a site for the purpose, stating that she intended her free gift for the benefit of Dolgelly and the immediate districts. After a long discussion the urban council decided by a majority to defer the matter pending a reply from the rural council which had previously agreed to bear a proportion of the cost. At the meeting of the rural council letters were read from almost all the parishes in the area protesting against the expenditure, the general opinion being that the hospital would be of no benefit to them and that the rates were burdensome. The rural council unanimously agreed to rescind the previous resolution to become responsible for part of the cost and resolved that no further steps should be taken in the matter. While all the members of the urban council are in favour of the hospital, the erection of which has been strongly urged upon them by the medical officer (Dr. Hugh Jones), it appears probable that the matter will be dropped now. The scarlet fever epidemic has abated.

THE PRESERVATION OF WOOD FROM WHITE ANTS.—In *Engineering* of August 17th is an interesting note upon a new process for the preservation of wood from white ants. It is well known what damage these insects do to woodwork in the tropics and in many hospital buildings their ravages have been extremely annoying. The process which *Engineering* describes consists of impregnating the timber with a saccharine solution, to which is added a small portion of a metallic salt, and an illustration which is published in the articles to which we refer shows two pieces of ordinary yellow deal, one of which had been treated and the other of which had not been so. These two pieces had been bolted together and placed by the curator of the Government Botanical Gardens at Singapore in a position where there were many white ants. The termites attacked the non-treated piece and very nearly destroyed it altogether, while the treated piece remained entirely unaffected. The process is carried out by the Powell Wood Process Syndicate, Limited, 28, Fleet-street, London, E.C. If we may judge from the illustration given by *Engineering* the process should be of great value where any wooden structure has to be used in a country infested with white ants.

BOOKS, ETC., RECEIVED.

BERGMANN, J. F., Wiesbaden.
- Über die Art und Wirkung der Auslösenden Kräfte in der Natur. Eine Physikalisch-biologische Studie. Von Dr. R. Sleeswijk, Nervenarzt, Bloemendaal (Holland). Price M.3.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.
- The Use of Shower Baths in Schools in England and on the Continent. By Frederick Rose, Ph.D., Assistant Educational Adviser to the Education Department of the London County Council. A paper read before the Medical Officers of Schools Association, June 14th, 1906. Issued by the Medical Officers of Schools Association. Price 1*s.*
- The Schott Methods of the Treatment of Chronic Diseases of the Heart, with an Account of the Nauheim Baths, and of the Therapeutic Exercises. By W. Bezly Thorne, M.D., M.R.C.P. Fifth edition. Price 5*s.* net.

CLINIC PUBLISHING CO., Chicago.
- Abbott's Alkaloidal Digest. A Brief Description of the Therapeutics of Some of the Principal Alkaloidal Medicaments and Other Success-makers, with Suggestions for their Clinical Application. By W. C. Abbott, M.D., Editor of the "American Journal of Clinical Medicine." Price not stated.

CONSTABLE, ARCHIBALD, AND CO., LIMITED, 16, James-street, Haymarket, London, S.W.
- Atlas of Cutaneous Morbid Histology. By Dr. Max Joseph, Physician for Skin Diseases in Berlin, and J. B. Van Deventer, Oberstabsarzt of the Netherlands East Indian Army in Batavia-Java. Price 18*s.* net.
- Diet and Dietetics. By A. Gautier. Edited and translated by A. J. Rice-Oxley, M.A., M.D. Price 18*s.* net.
- Mercers' Company Lectures on Recent Advances in the Physiology of Digestion. Delivered in the Michaelmas Term, 1905, in the Physiological Department of University College, London. By Ernest H. Starling, M.D., F.R.S., Jodrell Professor of Physiology. Price 6*s.* net.

COOK, THOMAS, AND SON, Ludgate-circus, London, E.C.
- The Swedish Touring Club's Guides. VII. Sweden. Edited by The Swedish Touring Club. With 17 Maps and Seven Plans. Second revised edition. Price 4*s.* net.

DEACON, CHARLES WILLIAM, AND CO., London.
- From Her to Him. By George H. R. Dabbs, M.D., Author of "Before Good Night," "From Door to Door," "Ugly: a Hospital Dog," &c. Price 2*s.* 6*d.*

FALCONER, JOHN, 53, Upper Sackville-street, Dublin. (BAILLIÈRE, TINDALL, AND COX, London; JAMES THIN, Edinburgh; JOHN WRIGHT AND CO., Bristol.)
- Transactions of the Royal Academy of Medicine in Ireland. Vol. XXIV. Edited by James Craig, M.D., F.R.C.P.I., General Secretary; Physician to the Meath Hospital and County Dublin Infirmary. Price not stated.

FISCHER, GUSTAV, Jena.
- Die Neubauten des Allgemeinen Krankenhauses St. Georg, Hamburg. Im Verein mit Dr. Wiesinger, Dr. Simmonds, Dr. Albers-Schönberg, Dr. Adam, und Dr. Schlagintweit. Unter Technischer Mitwirkung von F. Ruppel, Bauinspektor. Herausgegeben von Dr. Deneke, Aerztl. Direktor. Price M.8; geb., M.9.
- Uber die Untersuchung des gesunden und kranken Gehirnes mittels der Wage. Von Dr. Martin Reichardt. Arbeiten aus der Königlichen psychiatrischen Klinik zu Würzburg. Erstes Heft. Price M.2.50.
- Die Nervosität, ihre Ursachen, Erscheinungen und Behandlung. Für Studierende und Aerzte. Von Dr. A. Cramer, a.ö. Professor für Psychiatrie und Nervenheilkunde und Direktor der kgl. Universitäts-Klinik und Poliklinik für psychische und Nervenkrankheiten in Gottingen. Price M.8; geb., M.9.20.

GILL, L. UPCOTT, Bazaar-buildings, Drury-lane, London, W.C. (CHARLES SCRIBNER'S SONS, New York.)
- Secrets of Lawn Tennis. By F. W. Payn. Singles ex-Champion of Sweden, Gravesend, Scotland, Nottingham, Russia, Blackheath, Denmark, etc., etc.; Doubles ex-Champion of Holland, Scotland, Russia, Folkestone, Sweden, Vienna, etc. Price 2*s.* 6*d.* net.

GRIFFIN, CHARLES, AND COMPANY, LIMITED, Exeter-street, Strand, London, W.C.
- The Treatment of Diseases of the Digestive System. By Robert Saundby, M.D., M.Sc., LL.D., F.R.C.P., Professor of Medicine in the University of Birmingham; Senior Physician to the General Hospital. Price 3*s.* net.
- Toxines and Antitoxines. By Carl Oppenheimer, M.D., Ph.D., Translated from the German. By C. Ainsworth Mitchell, B.A. Oxon., F.I.C. Price 7*s.* 6*d.* net.

HARRISON, W. E., The Ancient House Press, Butter Market, Ipswich.
- First-Aid Tablets of Fractures. By S. O. Eales, L.R.C.P., L.R.C.S. Edin., Honorary Life Member, Lecturer and Examiner, St. John Ambulance Association; Chief Surgeon, St. John Ambulance Brigade, Ipswich Corps. Price not stated.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Klinik der Brustkrankheiten. Von Dr. med. *Alfred v. Sokolowski*, Primararzt im Hospital zum heiligen Geist in Warschau. Erster und Zweiter Bände. *Price, two volumes*, M.32.

Handbuch der Sauerstofftherapie. Herausgegeben von Dr. med. *Max Michaelis*, Universitäts-Professor. Price M.12.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

Lippincott's New Medical Series. Edited by Francis R. Packard, M.D. The Medical Diseases of Infancy and Childhood. With Points on the Anatomy, Physiology, and *Hygiene peculiar to the* Developing Period. By Alfred Cleveland Cotton, A.M., M.D., *Professor of* Pædiatrics, Rush Medical College, University of Chicago; Attending Physician for Diseases of Children, Presbyterian Hospital; Consultant to the Central Free Dispensary, &c. Price 15s. net.

KIMPTON, HENRY, 13, Furnival-street, Holborn, London, E.C.

A Treatise on Pharmacy for Students and Pharmacists. By Charles Caspari, Jr., Professor of Pharmacy and *Director of the* Pharmaceutical Laboratory in the Maryland College of Pharmacy, *Department of* Pharmacy, University of Maryland. Third edition, enlarged and thoroughly revised. Price 21s. net.

The Practice of Gynecology. In Original Contributions by Eminent Authors. Edited by J. Wesley Bovée, M.D., Professor of Gynecology, George Washington University, Washington, D.C. Price *31s. 6d.* net.

KING, P. S., AND SON, Orchard House, Westminster, London, S.W.

Glimpses into the Abyss. By Mary Higgs, Author of "The Master," "*How to Deal with the Unemployed.*" Price 3s. 6d. net.

National Conference on Infantile Mortality. Report of the Proceedings of the *National Conference on Infantile Mortality*, held in the Caxton Hall, Westminster, on the 13th and 14th June, 1906. President: Rt. Hon. John Burns, M.P., President of the Local *Government Board.* Chairman: *Evan Spicer, J.P., Chairman of* the London County Council. Price 1s. 6d. net.

LEWIS, H. K., 136, Gower-street, London, W.C.

Studies in *Blood Pressure: Physiological* and Clinical. By George Oliver, M.D. Lond., F.R.C.P. Price 2s. 6d. net.

The Climate of Lisbon and of the Two Health Resorts in its Immediate Neighbourhood, Mont'Estoril, on the Riviera of Portugal, and Cintra. By Dr. D. G. Dalgado, of the Royal Academy of *Sciences of Lisbon. A Paper read before the Section of Hygiene of* the Fifteenth International Congress of Medicine, held at Lisbon in April, 1906. Modified and enlarged. *Price 2s. 6d.*

Hygiene of the Nursery. By Louis Starr, M.D. Seventh edition. Price 3s. 6d.

LONGMANS AND CO., London; B. QUARITCH, *London*; *DULAU AND Co.*, London; KEGAN PAUL AND CO., London; and BRITISH MUSEUM (NATURAL HISTORY), London.

Illustrations *of British Blood-sucking Flies. With Notes by Ernest* Edward Austen, Assistant, Department of Zoology, British Museum (N.H.). Price not stated.

MACMILLAN AND Co., LIMITED, London.

Studies in Clinical Psychiatry. By Lewis C. Bruce, M.D., F.R.C.P.E. Price 10s. 6d. net.

MCCLURE, PHILLIPS, AND CO., New York.

Walter Reed and Yellow Fever. By Howard A. Kelly, Professor of Gynæcological Surgery, Johns Hopkins University. Price not stated.

NEMNICH, OTTO, Leipzig.

Orthodiagraphische Praxis. Kurzer Leitfaden der Theorie, Technik und Methodik *der Orthodiagraphie für Aerzte.* Von Dr. Paul C. Franze, prakt. Arzt in Bad Nauheim. Preis, geheftet, M.1.80; gebunden, M.2.50.

NEW SYDENHAM SOCIETY, London.

Selected Essays on Syphilis and Small-pox. Translations and Reprints from Various Sources. *Edited by Alfred E. Russell*, M.D. Lond., M.R.C.P. Price not stated.

OLIPHANT, ANDERSON, AND FERRIER, Edinburgh and London.

The Origin and Nature of Man. By S. B. G. McKinney, M.A., L.R.C.P. Edin. Part VI. The Formal Cause. Price 6d. net.

ORANGE JUDD COMPANY, New York. (KEGAN PAUL, TRENCH, TRÜBNER, AND Co., *LIMITED, London.*)

Modern Methods of Testing Milk and Milk Products. By Lucius L. Van Slyke, Chemist of the New York Agricultural Experimental Station. Price 4s. net.

PATON, J. AND J., 143, Cannon-street, London, E.C.

Paton's List of Schools and Tutors. (An Aid to Parents in the Selection of Schools.) Ninth annual edition, 1906–1907. Price 1s. 6d.

REBMAN, LIMITED, 129, Shaftesbury-avenue, *London*, W.C.

Handbook of Electricity in Medicine. By Dr. W. H. Guilleminot (Paris). Translated by W. Deane Butcher, M.R.C.S., Surgeon to the London Skin Hospital. Price 17s. net.

Elementary Manual of Regional Topographical Dermatology. By R. Sabouraud, Director of the *City of* Paris Dermatological Laboratory, St. Louis Hospital. English translation by C F. Marshall, late Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars, London. Price 21s. net.

The Treatment of Syphilis. By Alfred Fournier. Professor at the Faculty of Medicine, Member of the Academy of Medicine, Physician to the St. Louis Hospital, Paris. English translation of the second edition (revised and enlarged). By C. F. Marshall, M.D., F.R.C.S., late Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars, London; formerly Resident Medical Officer to the London Lock Hospital. Price 21s. net.

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SCIENTIFIC PRESS, LIMITED, 28 and 29, Southampton-street, Strand, London, W.C.

Muscles and Nerves. An Atlas of the *Superficial Muscles* and the Principal Motor Nerves of the Human Body for the Use of *Students of Anatomy* and *Nurses.* By *Louis* B. Rawling, F.R.C.S., Assistant Surgeon and Senior Demonstrator of Anatomy at St. Bartholomew's Hospital. Price 3s. 6d. net.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.

The Rise and Progress of Hydropathy in England and Scotland. By Ritchard Metcalfe, author of "Sanitas Sanitatum et Omnia Sanitas," "*Life of Vincent Priessnitz,*" "*Essays and Notes* on Hydrotherapeutics," &c. Price 3s. 6d. net.

SURGERY PUBLISHING COMPANY, 92, William-street, New York.

Surgical Suggestions. Practical Brevities in Diagnosis and Treatment. By Walter M. Brickner, M.D., *Chief of* Surgical Department, Mount Sinai Hospital Dispensary; Editor-in-chief, "*American Journal of Surgery,*" *New York; and Eli Moschcowitz,* M.D., Assistant Physician, Mount Sinai Hospital Dispensary; *Editorial* Associate, "American Journal of Surgery," New York. Price 50 cents.

THIEME, GEORG, Leipzig.

Vorlesungen für Schiffsärzte der Handelsmarine über Schiffshygiene, Schiffs- und Tropenkrankheiten. Von Medizinalrat Dr. B. Nocht, Leiter des Hamburgischen Medizinalamtes, Chefarzt des Seemannskrankenhauses *und des Institutes für Schiffs- und* Tropenkrankheiten in Hamburg. Price not stated.

UNIVERSITY PRESS, Manchester. (SHERRATT AND HUGHES, 60, Chandos-street, *London*, W.C., and Manchester.)

A Handbook of Legal Medicine. Intended for the Use of the Legal Profession. By William Sellers, M.D. Lond., of the Middle Temple and the *Northern Circuit, Barrister-at-Law. Price* 7s. 6d. net.

VIGOT FRÈRES, 23, Place de l'Ecole-de-Médecine, Paris.

Traité des Variations des *Os de la* Face de l'Homme et de Leur Signification au Point de Vue de l'Anthropologie Zoologique. Par M. le Dr. A.-F. Le Double, *Professeur* d'Anatomie à l'Ecole de Médecine de Tours, Membre Correspondant de l'Académie de Médecine. Price Fr.25.

VOGEL, F. C. W., Leipzig.

Handbuch der Kinderheilkunde. *Herausgegeben von Prof. Dr. M.* Pfaundler in München, und Prof. Dr. A. Schlossmann in Düsseldorf. 2 Bände. 1 und 2 Hälfte. Price M.30.

W. B. SAUNDERS COMPANY, Philadelphia and London.

A *Text-book of Pharmacology* and Some Allied Sciences (Therapeutics, Materia Medica, Pharmacy, Prescription-Writing, Toxicology, &c.), *together with Outlines for Laboratory* Work, Solubility and Dose Tables, &c. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the Medical Department of Western Reserve University, Cleveland, Ohio. Second edition, thoroughly revised and greatly enlarged. Price 18s. *net.*

Diet in Health and Disease. By Julius Friedenwald, M.D., Clinical *Professor of Diseases of the Stomach in the College of* Physicians and Surgeons, Baltimore; and John Ruhräh, M.D., Clinical Professor of Diseases of Children in the *College of* Physicians and Surgeons, Baltimore. Second edition, thoroughly revised and enlarged. Price 18s. net.

WATTS AND CO., 17, Johnson's-court, Fleet-street, London, E.C.

Sunday *Observance: Its Origin* and Meaning. By W. W. Hardwicke, M.D., Author of "The Evolution of Man and His Religious Systems," etc. Price 6d.

WRIGHT, JOHN, AND CO., Stone Bridge, *Bristol.* (*SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.*)

The Medical Annual Synoptical Index to Remedies and *Diseases. For the Six Years, 1899 to 1904.* Price 7s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLKIN, F. W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been re-appointed Medical Officer of Health to the Denton *District* Council.

BECKETT, F. H., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and *Workshop Act for the Ely District* of the county of Cambridge.

EVANS, JOHN, M.B., B.S. Lond., *M.R.C.S., L.R.C.P. Lond.*, has been appointed *Clinical Assistant* to the Hospital for Consumption and Diseases of the Chest, Brompton.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL UNITED HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BIRMINGHAM ASYLUM, Rubery-hill.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, &c.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with board, residence, and washing.

BUXTON, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CAPE OF GOOD HOPE, GREY HOSPITAL, King William's Town.—Resident House Surgeon, unmarried. Salary at rate of £300 per annum, with quarters and one ration.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum, with board, lodging, and washing.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Senior House Surgeon. Salary £120 per year, with board, apartments, and laundress.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £140, rising to £180, with board, lodging, &c.

EDINBURGH, SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—Lecturership in Physiology.

EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION.—Professor of Midwifery and Gynæcology. Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Physicians and One House Surgeon. Salaries at rate of £60 per annum, with board and residence. Also Resident Pathologist and Registrar. Salary £100, with board and residence.

LIVERPOOL STANLEY HOSPITAL.—Second and Third House Surgeons. Salary £70 and £60 per annum respectively, with board, residence, and washing.

LIVERPOOL, WORKHOUSE AND HOSPITAL, Rice-lane, Walton.—Assistant Resident Medical Officer, unmarried. Salary £125 per annum, with board.

LONDONDERRY AND NORTH-WEST OF IRELAND EYE, EAR, AND THROAT HOSPITAL.—Honorary Surgeon.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Junior Resident Medical Officer, unmarried. Salary at rate of £80 a year, with board and lodging.

MANCHESTER HOSPITAL FOR CONSUMPTION.—Assistant Medical Officer for Crossley Sanatorium, Delamere Forest. Also Resident Medical Officer for Hospital at Bowdon. Salary in each case £100 per annum, with board, &c.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood.—Resident Medical Officer. Honorarium £50 per annum, including board, lodging, &c.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary £70 per annum, with board, residence, and washing.

PETERBOROUGH INFIRMARY AND DISPENSARY.—Physician and Assistant Physician.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Third Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

WARRINGTON UNION WORKHOUSE.—Resident Medical Officer, unmarried. Salary £130 per annum, with apartments, rations, and allowances.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House Physician for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

YORK COUNTY HOSPITAL.—House Physician. Salary £100 per annum, with board, residence, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Stepney, in the county of London; at Corris, in the county of Merioneth; and at Dawlish, in the county of Devon.

Births, Marriages, and Deaths.

BIRTHS.

JACOB.—On August 14th, at Hindes-road, Harrow, the wife of Archibald H. Jacob, L.R.C.P. & C.S. Irel., of a daughter.

SELIGMANN.—On August 14th, at York-terrace, Regent's Park, the wife of Charles G. Seligmann, M.B., of a daughter.

MARRIAGES.

MCALLUM—COOKE.—On August 18th, at St. Jude's Church, Southsea, Donald C. A. McAllum, M.B. Edin., to Louisa, only daughter of the late Colonel A. H. Cooke, Indian Staff Corps, and of Mrs. Cooke of Queen's-terrace, Sussex-road, Southsea.

TATE—BEETON.—On August 14th, at Streatley Church, Captain Godfrey Tate, I.M.S., to Dorothy, younger daughter of the late Edmund M. Beeton and Mrs. Beeton of Tweenways, Streatley, Berks.

Notes, Short Comments, and Answers to Correspondents.

THE QUESTION OF IMMEDIATE ATTENDANCE.

ON August 15th, Mr. C. C. Becke, the coroner for Northampton, held an inquest into the causes attending the death of a man named Isaacs, aged 34 years. The widow in her evidence stated that on Sunday afternoon her husband had complained of feeling ill. On the Monday he did not go to work. On Tuesday morning at 9 o'clock she communicated with the Medical Institute. The medical man came a few minutes before 6 P.M. He prescribed some medicine which witness went up to the Institute to fetch but her husband died just as she was about to give it to him. Dr. William George Sutherland, the medical man, stated that he had been called to see the deceased on the Tuesday morning. It appears that he was acting as locum-tenent for the regular medical man attached to the Institute. As he was a stranger to Northampton he inadvertently did not get to the deceased's house till between 5 and 6. He considered the deceased to be suffering from catarrh of the stomach and he was collapsed. Dr. Sutherland went on to say that he had made a post-*mortem* examination and found all the abdominal organs healthy except the stomach. The heart was very much enlarged and covered with a layer of fat. The condition could not be diagnosed during life for a certainty. In answer to a juror Dr. Sutherland said he was not told in the morning that the case was urgent. The jury found that death was due to natural causes, but the foreman added "but at the same time the jury express regret at the neglect apparently of the doctor in not going earlier. There might have been a little possibility of doing something for the man." It was stated that Dr. Sutherland had only been in the town for three days and that it was naturally difficult for him to pick up every case. The coroner is reported as saying "He had him on his list and he ought to tick the cases off as he attends them." We cannot quite see what the coroner meant by this remark, for whether the name was ticked off or not it would have made no difference to the time at which Dr. Sutherland arrived. The coroner further remarked that if the relatives had any complaint to make they might make it to the committee of the Institute. We have no knowledge whether they did or did not make such complaint, but in the *Northampton Independent* of August 18th appears the following advertisement on p. 19:—

FRIENDLY SOCIETIES' MEDICAL INSTITUTE.

50, Broad-street, Northampton,
Thursday, August 15th (*sic*), 1906.

We beg to state in connection with the inquest held yesterday on the body of W. E. Isaacs that the *locum tenens* engaged in Dr. Bensley's absence on his annual holiday has been dismissed from his practice at the above Institute.

On behalf of the Committee,
J. J. W. PAGE, *President*,
J. B. PALMER, Secretary.

This friendly society does not seem to be a very just employer. When Dr. Sutherland was summoned in the morning he was not told that there was any urgency in the case. It was no doubt regrettable that this particular case was left until the last, but presumably, seeing the patient's condition, it would have made no difference whether Dr. Sutherland had arrived early or late, and the error by which he arrived late was fully explained. It would be interesting to know what the Friendly Societies' Medical Institute pays its medical men, but we at any rate congratulate Dr. Sutherland upon no longer being its employé.

QUACK ADVERTISING.

LAST week we commented upon the circular of a touting agency which professed to have been given the name of a medical man to whom it wrote. Another correspondent, who is a physician to a well-known hospital in the West of London, has sent us several circulars which he has received from the M. A. Winter Co. of Washington, D.C., North America. The circular quoted is, as will be seen, in the same style as that which we mentioned last week. Our correspondent, who has never acted as agent to any company, was naturally surprised by receiving a long circular letter of which we reproduce the commencement and a few subsequent paragraphs.

> DEAR FRIEND,—Your name has been handed to us by a business concern with whom you have been corresponding as a good party to take up our work in your section. The company speaks in the highest terms of your ability as an agent; therefore we are very anxious that you should work for us. ...... In fact, we believe you are just the right person to push such a good and profitable business as we offer you for all it is worth. ...... By selling this remedy you are building up a trade which will not stop but will go on increasing from year to year, because it becomes a staple article just like sugar or flour.

The remedy in question, which is guaranteed by the vendors to mitigate or remove a great variety of ailments, is "composed of the choicest barks, roots, and herbs." It is put up in boxes, 12 of which can be bought by the agent *for £1 7s. 1d. for resale* to the public at *4s. 2d.* each. The absurdity *of asking* a medical man to sell a quack remedy of unknown composition, guaranteed to give relief in a multitude *of diseases, might serve* a *purpose* in a jest-book but not elsewhere. The truth is that both the M. A. Winter Co. and its wonderful medicines are unworthy of serious consideration.

APPLIANCES FOR RESCUE WORK IN MINE ACCIDENTS.

Rescue parties in mine accidents are very often exposed to the dangers incidental to an irrespirable atmosphere, and firemen are similarly liable *to be overcome by smoke* and *acrid* or poisonous fumes. In The Lancet *of* August 13th, 1904, p. 477, we described an apparatus devised by Dr. Guglielminetti of Paris for the purpose of reducing these risks. *It consisted principally of a helmet* something like that of a diving dress but made *of* aluminium instead of copper; a cylinder of compressed oxygen carried on the back; a vessel containing *trays of caustic* potash *to absorb* the respiratory carbon dioxide; and a flexible breathing bag filled with ordinary atmospheric air, the nitrogen of which remained unchanged, while the oxygen *was renewed from* the cylinder and the carbon dioxide removed by the caustic potash. A man *can* easily carry enough oxygen to last for 30 minutes. Various contrivances for the same purpose have been *introduced by inventors such as Fleuss* and more recently by Herr Meyer of a Westphalian colliery, but they are all on very much the same lines. A few of them are enumerated in The Lancet of *Feb. 17th, 1906*, p. *488. Several years ago, however*, an inventor residing in the north of England brought to the office of The Lancet a *loose overcoat of air-proof material* with a lining of the same; this when inflated with *ordinary air by a bellows* held a supply which could be inhaled with a face-piece and was sufficient to last for a good while. In the terrible disaster which occurred at the Courrières collieries in the *north-east of France early* in the present year Herr Meyer having brought men and appliances from Westphalia was able to do important *rescue* work. The Westphalian exploring party carries a telephone by means of which communication is maintained with those who are in places of safety. Mr. Sydney F. Walker, writing in the New York *Electrical Review* of August 4th, on the general subject *of rescue after* mine accidents, says that there is an ever present danger of the collapse of the explorer partly from fatigue due to the weight of the apparatus carried and the bad state of the roadways after an explosion, and partly from the gradual vitiation of the air which he breathes owing to the slow removal of the carbon *dioxide by* the caustic potash. Mr. Walker therefore suggests that the bodily condition of the explorer *who carries* a telephone might always be known at the safety station in his rear if a microphone were placed on some convenient artery and connected with a telephone at the safety station, where a surgeon *might infer* the condition of the distant explorer from the sounds heard in the telephone. A somewhat similar arrangement might also be connected to some part of the explorer's chest, so that the laboured breathing which accompanies exhaustion, whether *from* exertion or from the presence of much carbon dioxide in the inhaled air, might also be read at the pit bottom.

HARVEST BUGS.

To the Editors of The Lancet.

Sirs,—"L.R.C.P." should try commercial carbolic acid as a general disinfectant. *Powdered borax* may also be dusted here and there on the surface of the body. Menthol dissolved in petrosol, spirit, or oil, applied by spray or on cotton-wool, will give instant *relief to irritation.*

I am, Sirs, yours faithfully,

Annfield Plain, August 18th, 1906. W. G. Pretsell.

MARGARINE AND PREJUDICE.

There is after all a good deal in a name or the lay mind would not regard with so much apparent prejudice that excellent and wholesome substitute for butter—margarine. *One worthy London* alderman *seems to* think that it is no better than, say, train oil, for on imposing very properly a fine on a certain catering company last week for selling butter which was not in *fact butter but margarine*, he was induced to reduce the maximum penalty because the defendant's solicitor had given an assurance that margarine would not be used again *even for cooking purposes.* Now, the Sale of Food and Drugs Act does not require that butter and nothing but butter should be used for cooking purposes, and there is no reason why it should do so. *It is*, in fact, possible *that margarine* is better for some cooking purposes than butter. Margarine is an excellent and palatable fat food and its process of manufacture is calculated to render it less open to bacteriological suspicions than butter. Margarine is not, and never can be, butter, any more than apples can be peaches, but that is no reason why apples *should* not be perfectly good food material.

A LIST OF OFFICIAL *CHEMICAL* APPOINTMENTS.

Under the direction of the *Council* of the Institute of Chemistry Mr. Richard B. Pilcher, the secretary of the Institute, has compiled a list of the official chemical appointments held in Great Britain and Ireland, *in India*, and the colonies. In some ways the book has its prototype in the Medical Directory, while it serves to indicate the increasing appreciation of chemical investigation by departments *of* State, Colonial governments, local authorities, and *public* institutions throughout the British empire. It includes a very complete list of *the names of the professors* and teachers of chemistry in universities, colleges, and technical schools, and also the names of the analysts appointed under the provisions of the Sale of Food and Drugs Act. *We believe* that the publication is the first of its kind connected with the practice of professional chemistry, and though intended primarily for the use of consulting and analytical *chemists it will* obviously be useful for reference to public authorities, and indeed to all interested in the applications of chemistry to State matters and in the promotion of higher *education in chemical* science.

THE GERMAN LANGUAGE AND MEDICAL MEN.

To the Editors of The Lancet.

Sirs,—In the Annotations column of The Lancet of August 18th you refer to the small number of medical men who are able to read German medical *books. Dr. Fiedler*, professor of German in the University of Birmingham, with the assistance of his colleague, *Mr.* Sanbuch, has recently brought out an excellent little book designed to teach busy men *enough* German to enable them to keep abreast of German scientific literature. The plan of the work is simple and practical and the price is small—2s. *6d.*

I am, Sirs, yours faithfully,

Birmingham, August 20th, 1906. Arthur Loxton.

THE TREATMENT OF FŒTID FEET WITH CHROMIC ACID.

Dr. Sabouraud, in the *Journal de Pharmacie et de Chimie* of July 16th, recommends the use of a 4 per cent. solution of crystals of chromic acid in distilled water in cases of fœtid perspiration of the feet. The lotion is applied briskly by means of a plug of cotton-wool, care being taken that the liquid thoroughly penetrates between and under the toes. The treatment should be repeated daily for a few days, then every second day, every third day, until finally one application a week is usually sufficient to complete the cure. Dr. Sabouraud states that unpleasant odours of the feet rapidly disappear under this treatment and that the effect remains for a considerable time. The lotion should never be applied twice on the same day owing to the risk of producing an erythematous eruption lasting several days.

THE LAW, THE MEDICAL MAN, AND THE MOTHER.

To the Editors of The Lancet.

Sirs,—I was called upon *one* night recently by the usual constable with the usual slip of paper stating that a male child had been found deserted, &c., and asking if I could throw any light on the subject from any confinements *I had* attended lately. He could not say whether the child was found living or dead.

As a fact I had attended no labours for months, and said so; but not being busy at the time, and the man being of intelligence, I discussed with him the ethical question of giving or withholding such information. Inviolable confidence between practitioner and patient was the *line I took, and* take; whilst one's duty as a citizen was his standpoint, a duty, he contended, that is paramount to all other considerations.

The point is interesting, and not infrequently arises in general practice.

I am, Sirs, yours faithfully,

M.B. Lond.

August 14th, 1906.

* * *

Lex.—Our correspondent is entitled to deduct the cost of feeding the patients, whether the diet is special or otherwise; but he is not entitled to deduct anything for medical attendance.

Chantry-road.—Our correspondent who wrote from this address but who omitted to sign his name is advised to consult the public analyst for his district.

Erratum.—Mr. J. Lionel Stretton writes:—In my description of Two Unique Congenital Deformities in the Abdomen of the Same Patient reported in your issue of August 18th, p. 440, there is an obvious error. "Cardiac end of the stomach" should read "*pyloric end.*"

Communications not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

The Lancet Office, August 23rd, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 17	29.82	W.	0.09	114	63	56	57	60	Cloudy
" 18	29.93	W.	...	101	65	63	55	58	Cloudy
" 19	30.18	W.	...	112	67	54	55	59	Cloudy
" 20	30.14	W.	...	94	72	53	57	61	Cloudy
" 21	30.16	W.	...	125	81	61	65	68	Fine
" 22	30.00	S.W.	...	126	85	63	66	70	Fine
" 23	29.90	S.W.	...	117	75	63	64	67	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (1st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

TUESDAY (28th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

WEDNESDAY (29th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

THURSDAY (30th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

FRIDAY (31st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M. Diseases of the Throat, Nose, and Ear. Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

SATURDAY (1st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 A.M. Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1906, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1906 are now ready. Bound in cloth, gilt lettered, price 18*s*., carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s*., by post 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.				TO THE COLONIES AND ABROAD.			
One Year	£1	12	6	One Year	£1	14	8
Six Months	0	16	3	Six Months	0	17	4
Three Months	0	8	2	Three Months	0	8	8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

During the week marked copies of the following newspapers have been received: *Leeds and Yorkshire Mercury, Liverpool Courier, Northern Whig, Telegraph, Daily News, Morning Post, Daily Mail, Evening Express (Liverpool), Morning Leader, Globe, Bristol Times, Elgin Chronicle, Bristol Mercury, Westminster Gazette, Birmingham Post, Hampshire Advertiser, Southampton Echo, Wolverhampton Midland Express, Newcastle Chronicle, Herts Mercury, Scientific American, Literary Digest, &c.*

Communications, Letters, &c., have been received from—

A.—Dr. F. W. Alexander, Eastbourne; Mr. S. Appleton, Lond.; Messrs. Allen and Hanburys, Lond.; Mr. E. Arnold, Lond.

B.—Messrs. Burroughs Wellcome, and Co., Lond.; Messrs. J. Beal and Son, Brighton; Captain R. J. Blackham, R.A.M.C., Devonport; Messrs. T. B. Browne, Ltd., Lond.; Mr. W. Naylor Barlow, Bootle.

C.—*Dr.* William Collingridge, Lond.; Cumberland Infirmary, Carlisle, Secretary of; Cheltine Foods and Chocolate, Ltd., Cheltenham, Manager of; C. W.; *Children's Country Holidays* Fund, Lond., Chairman of; Mr. F. W. Clarke, Chorlton-cum-Hardy; Messrs. Cornish Bros., Birmingham; Messrs. J. and A. Churchill, Lond.; Dr. G. H. Colt, Lond.

D.—Messrs. Down Brothers, Lond.

E.—Electrical Standardising, &c., Institution, Lond., Secretary of.

F.—Messrs. Feuerheerd Bros. and Co., Lond.; Dr. J. L. Falconer, Pendlebury.

G.—Dr. Reginald Green, King's Norton; Messrs. W. Green and Sons, Edinburgh; Mr. H. R. Gawen Gogay, Southchurch Beach.

H.—Dr. P. W. Hampton, Wigan; Dr. Francis Hawkins, Reading; Mr. W. S. Handley, Lond.; Mr. J. M. Hobson, *Croydon*; Messrs. Hastings Bros., Lond.; H. O. M. D.; Mr. Thomas Heard, Cheltenham; Messrs. Harvey Brothers, Lond.; Mr. W. L. Harnett, Lond.; Messrs. Haasenstein and Vogler, Cologne.

I.—Messrs. Isenthal and Co., Lond.

J.—Messrs. W. and A. K. Johnston, Edinburgh.

K.—Dr. J. Kerr, Perth; Dr. C. F. Knight, Portobello; Messrs. R. A. Knight and Co., Lond.

L.—Locum, Newport.

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THE LANCET.

LONDON: SATURDAY, SEPTEMBER 1, 1906.

An Address to Students.

ONCE again it is our duty to speak words of welcome to those who are for the first time joining the ranks of medicine; and although to a certain extent what we have to say must be what we have said before—for it is to be remembered that we have preached from the same general texts for over 80 years—we are pleased to find that each year brings its special message to the medical practitioner and to the man who is embarking upon a medical career. The fact that this is so shows that the profession of medicine is in no way a stereotyped affair, for now one thing and now another thing comes into prominence as the essential point of the year, the association between the profession of medicine and the varying and various needs of the public being in this way demonstrated. A war pointedly attracts our attention to the organisation of military medical defence; a trans-Atlantic scientific congress, a meeting of the British Association in South Africa, or a historic pageant in India draws our gaze to different regions of our empire beyond the seas, and reminds us that the principles by which that empire is governed resemble in no superficial way the principles of medical practice. Just as a multiformity of legislation is required to deal with a multiformity of social conditions, so an elaborate scheme of therapeutic processes has been devised to meet groups and subdivisions of disease; but the essentials of justice remain the same and so do the ends and aims of medicine.

The difficult question of medical education seems to us at the present moment to be the one that most presses for settlement, and no student should commence his career without having some idea of the curriculum that lies before him, and without knowing why he is compelled to pass certain tests. Disorderly as the educational path of the medical student is—and we have only to refer to the masses of information which follow under the headings of all the different medical schools of the kingdom for justification of the uncomplimentary epithet—yet the track is clearly marked out and the tests that lie before him are well-intentioned and purposeful. He should start on his way with an idea of what is required of *him*. Our words are naturally directed to all medical students, British or Colonial, metropolitan or provincial, but inasmuch as the conventional course of the medical student varies in large things and small according to the locality where he studies, the message will not always apply to all of them. Let us begin with the London medical students, still so numerous although their numbers have gone down, and still enjoying such enormous privileges though weighted by a correspondingly heavy handicap. The privileges of the London medical student are obvious. London is not only the capital of this empire but it is a truly world capital in a way and to an extent that, say, Paris and New York are not. If, as would appear to be the indisputable case, medicine and surgery can be best learned where men and women are crowded together in the greatest density, displaying the most numerous types of disease and the most complicated forms of social inter-relation, then it follows that London possesses the qualifications for the provision of the finest medical education in the world. As a writer in THE LANCET said last year, when commenting upon the fact that the number of students at the London Medical Schools was rapidly dwindling year by year:—

> By so much as the work done in the wards and out-patient departments of the London hospitals is not utilised for educational purposes, by so much is our country placed at a disadvantage compared to others—we are wasting our opportunities. The world is the poorer and Great Britain is especially the poorer. The advantages of living in London, and the field that is offered by London for the observation of disease, cannot have escaped the attention of the student or his parents. A huge seaport, the seat of a court and a Government, a teeming industrial centre finding employment for tens of thousands of operatives, a fashion and a pleasure capital, a focus around which 20 residential cities are more or less loosely grouped, and the money exchange of civilisation—that is London, and such a city, or rather such a congeries of cities, must have within its ill-defined ramparts examples of all sorts and conditions of physical ill. Before the student of disease would turn his back upon the opportunities thus offered to him he must feel that he would suffer in London from disabilities so serious as to annul the benefits.

It is the disabilities here referred to which we would have the medical student realise from the first, for with early industry and perseverance he may make light of them.

The London medical students are less numerous than they used to be because medical education in London is suffering from gravely anomalous conditions. Several attempts at restoring order have been made, and some of them have been made with success, but none the less much remains to be done before full advantage will be taken of the wonderful pathological material offered by the metropolis. The London medical student cannot obtain an M.D. degree upon the same terms as can the student of one of the Scottish or Irish or provincial universities. This is now a well-known fact to both students and parents and cannot be without its influence upon them. Again, the presence of a dozen different competitive medical centres in London is a source of weakness. In days not long gone by medical education implied no real acquaintance with allied sciences, and no practical skill in their application was demanded of the student before his actual professional training commenced. The machinery for medical education was then so simple that a number of centres was rather to be encouraged than not, for healthy rivalry was produced by them. But when the cost of medical education became very heavy, when new laboratories had to be built, when many demonstrators and lecturers were required, it became manifest that in London the plan of numerous rival schools was disastrously uneconomical. A partial attempt has been made now to meet this evil, and many able men, devoted to the cause of medicine and seeing in anything that produces the desertion

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Apothecaries are not in professional opinion entitled to style themselves "doctor," though the public will not allow them to describe themselves otherwise. This is extremely galling for the diplomate, as the public cannot understand his position and may regard him as an inferior man. Hence a never-ending subject of discussion among medical men, and hence also a position by which the new medical student should take warning. The only way to avoid disabilities, under which, at any rate, some members of the medical profession feel that they suffer by not possessing a medical degree, is to keep the attainment of such a degree steadily before the eye as the natural end to the student's curriculum. We know well that many men, so many as to form a substantial majority of the medical practitioners of this country, possess the pass titles of a corporation and enjoy every whit as good a position, scientifically and socially, as their colleagues who happen to be medical graduates; but the number of medical graduates is rapidly increasing and the new student should make up his mind not to be in the position that many diplomates are beginning to find unsatisfactory. This advice must come harder to the London student than to students in the new provincial universities, or in Edinburgh, where medical education is more concentrated and orderly, and where the medical degree is the natural ending to the career of all hard-working students. But all medical students alike should strive for a medical degree from the beginning of their medical careers, and the hardships of the London student may turn out blessings in disguise if the curriculum is steadily persevered with.

And this brings us to the second main lesson that we wish to impress upon the medical student of to-day. Not only is medical education in a fluctuating condition but the social and material position of the medical man is also not so stable as it was. Consequently, it cannot be too firmly impressed upon the medical student that in his preliminary education and general culture will lie a great part of his future strength. It has been pointed out recently by more than one writer that while the scientific equipment of the medical man of to-day differs in countless respects from that of his grandfather, the expansion of learning that has taken place in medicine has been taking place in all other branches of knowledge, with the result that the status of the medical man has been somewhat altered. He is no longer a member of one of three learned bodies, keeping within the *ring-fence* of their curriculum the academic and scientific culture of the nation. The nation as a whole is becoming educated, and a university training is now quite frequent in walks of life where recently it was regarded as useless if not detrimental to a man's material progress. The result is that the medical man, if he is to be certain of the consideration of his patients, if he is to be esteemed as he formerly was by the public, must take pains to acquire a sound preliminary training. Time spent over a difficult matriculation is not wasted. The student has a right to expect that his educational course should be a straightforward one and that facilities will be forthcoming for him to obtain the learning, possession of which he has afterwards to prove in examination. But he must not nowadays expect to be admitted to the rolls of the profession under any simple tests; all that can be done for him is to make it easy for him to get proper instruction for those tests. The student must be prepared to undergo stringent scrutiny before admission to the roll of his profession, and he will find a premium set upon his evidences of general culture, because it is recognised that he cannot take his proper place among the educated classes of the public simply by the light of technical equipment. And it is especially important that medical men should be well regarded of the public, for it is to the public that the medical profession has to look for the redress of its manifest grievances.

There are at the present moment, we all know, many hardships existent in medical life. There is no reason to suppose that hardships will not always exist, and when those that now play such a prominent part in the life of medical men do not exist others will quite possibly take their place. But in spite of this we would urge the recruits who are now joining our ranks not to pay too much attention to the cry of the pessimist. As a medical practitioner, in whatever section of the profession his duties call him, he will have to work hard and very often, more often than not, his reward will not be commensurate with the amount of work that he does. But some of the loudest cries from within the ranks of the medical profession against medical life are not quite reasonable. *For example*, there is no justification whatever for saying that the ranks of the medical profession are grossly overcrowded. The ratio of medical men to the population is now very much what it was 40 or 50 years ago, and we are at no disadvantage in the matter compared with other countries. Members of the medical profession are not evenly distributed among the population, and the acute cases of rivalry are due not to the fact that in the bulk there are too many medical men to the population but to the fact that too many of them desire to do the same kind of work. Again, we are told that medical aid associations have ruined the medical practitioner. Undoubtedly, in many places clubs have exploited their medical officers and grave hardships have followed, but it is our belief that the worst mischief here is over and that the public is beginning to perceive that the resistance made by medical men to the exactions of medical aid associations is legitimate: in which case the future exertions of ignorant persons directed to the exploiting of scientific work are doomed to failure. Hospital abuse, again, is a very real grievance to the medical practitioner as well as to the genuine sick poor, but there are signs of a healthy feeling in the matter. The idea is now certainly abroad among hospital authorities that it is necessary to watch vigilantly over the class of cases offering themselves for treatment. The hospitals owe it to the really sick that their ministrations should not be exploited by trivialities, and they owe it to the public that their wards should not be gratuitously used by patients who are able to pay adequate medical fees in accordance with the usual, and by no means exorbitant, scale in this country. Now that this sentiment has got abroad we may hope that the day is not far distant when the out-patient departments of the hospitals will be recognised by the public as the poor man's consulting-room, as the place where he goes to get a consultant of London by the medical student a grave disaster for the cause of science, are collaborating to place the medical education of London upon a more satisfactory basis. We may look forward confidently to the day when the scientific courses ancillary to the medical profession may be taken out in London at two or three centres, leaving the various medical schools to provide for the student, when he has reached his professional classes, that clinical material which is unrivalled in London and without which no scheme of preparatory scientific work is of any use. A certain amount of centralisation has already taken place, with a manifest saving of time, labour, and money, and this is a direction in which reform may be expected. The University of London is also aware of the necessity of so arranging and codifying the medical course that the able and industrious medical student, having before him a straight even if an arduous journey, will arrive by the usual amount of application at a medical degree as the natural termination of his labours. There will necessarily be differences of opinion as to the amount of facility that the University should offer. No one desires to see the standard of the famous London degree lowered, yet no one can fail to appreciate that many admirable students have missed obtaining that degree owing not so much to the stringency of the professional tests as to the unnecessary multiplication of earlier examinations, the vagueness of the schedules for these examinations, and the want of provision of adequate assistance at some of the medical centres. Reform of all these things is in the air, but much remains that requires amendment, so that it must be to some extent the task of the London student to lay out for himself as orderly a career as possible, in doing which we urge him to determine to obtain the degree of his university.

Considering now medical education generally, undoubtedly it is in a transition condition, and wherever we have to deal with transition conditions some class or other undergoes hardship. For example, our highways were constructed, as befitted those of an agricultural country, for pedestrians, for horsemen, for transit by wagons of food-stuffs, and for the passage of a certain number of lighter horse-drawn carriages. Violent transition in our methods of traffic has ensued and our highways are no longer adequate or suitable for the purposes to which they are put. The motor car, whether driven for pleasure or commercial purposes, has seized the roads for which it is unfitted, and immediately the gravest hardships have followed for those who live abutting on the roads. Their homes may be well-nigh ruined, their business may perish, and material and mental damage hardly to be appreciated may be their lot, yet he would be a bold man who should say that, despite these obvious and valid objections to the use of motor traffic as we now see it, the motor will not play a part in a new and prosperous era for country districts. If this be so, the only course open for the present sufferers is to range themselves as quickly as possible on the side of the new *régime*. Another example, and one more distinctly germane to medical affairs, of the cruelty that follows upon social transition, though that transition may have been designed as reform, is afforded by the case of unqualified assistants. The General Medical Council recently abolished with little warning and little ceremony all unqualified medical assistants. These men formed a large class and played an important part in the scheme of work of the general practitioners of the last century. When they were swept away a number of men, some of them good, useful, and worthy citizens, were suddenly deprived of all means of livelihood, while many members of the medical profession were embarrassed by the loss of valuable coöperators in the routine of their work. A premium was placed upon the assistance of the newly qualified medical man who could and did demand a higher salary than the unqualified assistant, but who in many directions was unable to help his principal in the manner that made the unqualified practitioner so useful. Many unqualified practitioners were, for example, skilled obstetricians, while few young men who have recently obtained their degrees or diplomas can be thus described. Here we have hardship to many general practitioners and distinct hardship to all the class of unqualified practitioners, and for the time being a premium put upon the services of inexperienced persons. Upon its face the situation was unjust, yet nobody who has studied medical politics at all has the least doubt that the cause of medicine was properly served by the abolition of the unqualified practitioner. He was an anomaly and in the cause of progress he ceased to exist, but the process of transition was attended by distinct cruelty.

The medical man of the present day, whether in London or elsewhere, may have to suffer from the transition condition of medical education and the altering position of the medical man towards the public. The General Medical Council has been debating the state of the medical curriculum for the past two sessions; it has been found overloaded and unpractical in some directions and deficient in others. The student admittedly has no time in which to read all his subjects thoroughly, yet the fifth year of his course, which was to have been devoted to clinical work, is spent by most students in getting up book-work. This position will not remain unchanged, but what the medical student must understand is that there will be no lightening of his labours by the lowering of standards. He cannot too soon range himself on the side of progress. To give this advice to the unfortunate holder of a long lease of a half-ruined frontage is, of course, idle. He cannot go a-motoring himself because the developments of the motor industry have deprived him of money; others will benefit by the warning which he supplies—he apparently cannot be helped. But the medical student who has just joined a school is still in time to anticipate the directions in which success may come to him from new developments in the profession of medicine, as well as the directions in which he must be on his guard. And the first advice that we give to the medical student—advice that should be given to him by all parents or deans of medical schools—is to work for a medical degree. For the time being this is the only solution for the medical man of the vexed question as to who has a right to the title of "doctor." It is an embarrassing fact that only those who graduate in medicine at one of the universities bear by academic right the style which is popularly granted to all medical men—viz., the title of "doctor." The diplomates of the Royal Colleges and the Licentiates of the Societies of

THE STUDENT'S LIBRARY.

WE offer below some suggestions for the benefit of the medical student as to the books which he is likely to find most useful in the course of preparation for his examinations. We have not found it necessary this year to make any extensive revision of the lists of books which we recommend; but the columns of THE LANCET which are devoted each week to the reviewing of new text-books have during the year contained notices of many works that can be used in substitution for, or in supplement of, those that we mention.

The student has to remember that there are two objects which he should have in view: the first, which is usually looked upon as the more urgent, is the passing of the various examinations which are necessary for the degree or diploma he desires to obtain. The other object is, however, of more importance ultimately, and this is the attainment of a thorough knowledge of his profession so that he may practise it to the benefit alike of his patients and himself. The books which are most suitable for the second object are not necessarily those which would afford most assistance in attaining the first. The examinations, however, must have the prominent place while he is yet a student, for until he has surmounted these obstacles he is entirely precluded from the practice of his profession. In choosing books for a particular examination the student must avoid both reading too little and reading too much. The greater danger lies, perhaps, in reading too widely. Many students dip into many books and fail to master any. The student should recognise the scope of his examination and should first endeavour to limit his reading to the required standing. When, however, he has made himself master of that portion of the subject which the regulations of the examination require he may go farther. A book may be very useful or even necessary for one examination and useless for another of a different standard, and if useless it is really harmful, for its perusal will take up time which might be more usefully employed. There is every year an increasing difficulty for us to pick out individual treatises, for the output of volumes from the medical press has increased enormously; but, on the other hand, it is every year less and less important which particular work the student selects. Only a few years ago he was limited to the medical treatises appearing in the British Isles, but now in addition he has the very large supply of works from the other side of the Atlantic, for several American publishing houses have established branches in this country from which they are putting out works of the highest order From these three things—the large supply of text-books, their excellent and authoritative nature, and the addition of many valuable American works to our library—arises a great difficulty for anyone who should attempt to suggest to the student what should and what should not be the book he ought to buy. In nearly every branch of professional knowledge there is a very wide choice, and all that those most familiar with contemporary medical literature can do is to offer the student some general guidance.

BOOKS RECOMMENDED FOR THE DOUBLE QUALIFICATION OF THE ENGLISH ROYAL COLLEGES.

In the list which appears below we have again, as in previous years, taken the examinations for the *double diplomas* of the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England as the type of the tests which every student works to pass. He may not do so much and he may do *more*; the above-mentioned qualifications are good and representative ones and are sought by a very great number of medical men whether they proceed to graduate at a university or not. Our advice given in the address to students is that every student should now strive for a medical degree and the multiplication of local universities has begun to lessen to some extent the number of men competing for the diplomas of the different Royal Colleges. But the great number of candidates for the degrees of the provincial universities still pass the examining boards of the corporations first, and very often must find that the tests that they have already undergone are as severe as any they are later asked to undergo. It is unnecessary, and indeed impossible, to make any attempt to suggest text-books to be read for these particular medical degrees. The lecturers in the various faculties at the universities will suggest to their students the manuals to be read and, having regard to the fact that the majority of their students still desire to belong to a corporation as well as to a university, it is probable that the books recommended as necessary for instruction on the general subjects will in the main be the same as we now set down.

The following are the text-books recommended by the consensus of opinion of a representative group of London teachers for the examinations of the London Conjoint qualification, the list having been carefully revised this year:—

FIRST EXAMINATION.

Chemistry.—LUFF'S *Chemistry* (Cassell, 7*s.* 6*d.*).—This book was written with a view to this examination and contains exactly the right material.—ATTFIELD'S *Chemistry* (Gurney and Jackson, 15*s.*) is also recommended, but is rather more elaborate.—CORBIN and STEWART'S *A Handbook of Physics and Chemistry* (J. & A. Churchill, 6*s.* 6*d.*) is excellently adapted to the requirements of this examination.

Physics.—DANIELL'S *Physics* (Macmillan and Co., Limited, 4*s.* 6*d.*).—ALDOUS'S *Physics* (Macmillan and Co., Limited, 7*s.* 6*d.*). The student will only require selections which should be made in accordance with the advice of his teachers.

Pharmacy.—HALE WHITE'S *Materia Medica* (J. & A. Churchill, 7*s.* 6*d*).—*The Science and Art of Prescribing*, by E. H. COLBECK and A. CHAPLIN (Kimpton, 5*s.* net), is a valuable little introduction to the practical application of materia medica and will be useful to the student when he reaches the wards.—*Practical Pharmacy and Prescribing*, by JAMES CALVERT (H. K. Lewis, 4*s.* 6*d.*), is a trustworthy notebook which is in use by the students at St. Bartholomew's Hospital.

Biology.—P. CHALMERS MITCHELL'S *Outlines of Biology* (Methuen, 6*s.*).—The book was written with a view to this examination, but it is frankly only an introduction. Still, the subject at this examination is a very limited one.

SECOND EXAMINATION.

Anatomy.—GRAY'S *Anatomy* (Longman's, 32*s.* net).—QUAIN'S *Anatomy* (Longmans, in nine parts at different prices).—MORRIS'S *Anatomy* (J. & A. Churchill, 30*s.* net).—The first of these treatises is sufficient by itself, while the article in it upon osteology is unequalled. The books of QUAIN and MORRIS contain matter that is not essential for the examination under consideration, but all who aspire to the higher examinations should have and read one of them. The same may be said for the *Manual of Practical Anatomy*, by the late Professor ALFRED HUGHES and Dr. ARTHUR KEITH (J. & A. Churchill, in three parts, 29*s.* 6*d.*).

Physiology.—HALLIBURTON'S *Kirkes' Physiology*, sixth (being the nineteenth edition of *Kirkes' Physiology*) edition (J. Murray, 14*s.*).—FOSTER'S *Physiology* is probably the best text-book in English and written in a good literary style, but it does not supply the medical student with sufficient cut-and-dried answers to questions which are sure to be set him at this examination. HALLIBURTON'S *Kirkes* is therefore the book to be recommended for the average student, but by all means let him enlarge his knowledge by reading FOSTER'S book if he finds that he can swim in deeper water.—HALLIBURTON'S *Essentials of Chemical Physiology* (Longmans, 7*s.* 6*d.*).—SCHÄFER'S surgeon's or physician's view on his case when his medical man or the medical officer of his provident dispensary desires a further opinion on his case. All these questions may seem far removed from the medical student's sphere, but they will soon press upon him and he cannot familiarise himself with professional problems too soon.

Our message, then, to the medical student is to work from the first for honours, and if in doing so he finds that he has to learn a good many things the immediate utility of which he does not perceive he must take it for granted that the more general his education the more ready will the public be to accept him as an adviser, and the more sympathetic and capable adviser will he be. It is to the public, as education permeates downwards, that the medical profession has to look for that general esteem of scientific work which alone will redress our professional grievances, and it is necessary that the public should see in us an exceptionally highly educated body of men.

THE DEVELOPMENTS OF PATHOLOGY.

THE institution of laboratories as an aid to clinical work in private and hospital practice is a result of the general development of pathological research which has yielded such valuable information during recent years. Since the year 1882, when Professor Koch demonstrated the pathogenic organism of tuberculosis, the importance of laboratory investigation in connexion with purely clinical work has been gradually made manifest, until at the present time certain pathological procedures have become matters of routine in medical practice. At first the mere detection of micro-organisms in sputum or in the organs of the body after death occupied the attention of those observers who were gradually developing the new science of bacteriology. In the wards and in private practice the ordinary examinations of urine were made; occasionally the blood was examined in regard to the amount of hæmoglobin contained and the numbers of red and white corpuscles were duly counted, but so far no more detailed laboratory work was undertaken as part of the ordinary routine of therapeutics. Now, however, the various processes which have been introduced as an aid to diagnosis are numerous and complicated and can only be accurately carried out after careful instruction, while trustworthy conclusions can only be arrived at after long experience. In order to perform the tests founded on bacteriological and pathological facts laboratories specially fitted are essential. Certain of the more simple procedures, such as the detection of tubercle bacilli in the sputum or the examination of urine for albumin and sugar, can, of course, be carried out by every practitioner possessed of a good microscope and the necessary reagents. On the other hand, the estimation of opsonic indices, the performance of the Widal reaction for typhoid fever, the culture test for diphtheria, the differential estimation of the various forms of red and white blood corpuscles, as well as the more complicated processes of chemical analysis, can only be conducted in well-appointed laboratories. The medical curriculum is, of course, far more involved than it was formerly, and considering the multiplicity of subjects in which the student is examined, the question naturally arises, How far is it incumbent upon him to make a practical study of the more advanced of the developments of clinical pathology to which we have alluded? That he should attend a course of lectures and demonstrations on bacteriology is absolutely necessary; he must acquire personal knowledge of the characters and properties of the more common pathogenic micro-organisms. We think also that he should see the more elaborate processes carried out by the lecturer, such as the estimation of the opsonic index and the methods of staining employed in the differentiation of the various forms of leucocytes; but that he should be able to perfect himself in these measures cannot be expected, and he has a right to anticipate that examiners will not demand such accomplishments of him. Prolonged practice and experience are necessary before difficult and delicate laboratory work can be performed properly, and trustworthy deductions drawn from it. The student has not the time to devote to acquiring the necessary experience, and secondly, even if he had the time in subsequent practice, in the majority of instances he would not have the necessary appliances at his command. All the students who wish to hold resident appointments might well be asked to attend for a certain time in the hospital laboratory, for without at any rate some first-hand knowledge of the work conducted therein they will not be adequate assistants to their chiefs and will lose many of the benefits of their appointments. We find, therefore, that early in the student's curriculum there will naturally be differentiation in the course of studies pursued, some students leaning towards laboratory work by inclination, or being persuaded to go thoroughly into such work because of the advantages derived from it; others only doing so much as is necessary for the passing of their examinations. But we have impressed upon the student in our opening address this year that he should keep his eye from the beginning of his career upon the obtaining of a medical degree, and for this reason we remind those who would as far as possible avoid laboratory work that a certain familiarity with the *rationale* of modern adjuncts to diagnosis and treatment will be expected of all who are taking out an honours course.

But there is no gainsaying that there is now room for a body of workers devoted entirely, or almost entirely, to laboratory methods. The special training required, the closeness and minuteness of their studies, and the familiarity with practical detail exacted of them make it impossible that these observers should keep at the same time in touch with clinical medicine, while the average medical student cannot pursue such developments and work at the same time for his pass examinations In order to obtain the fullest value from the pathological laboratory the services of experts are required, which means that certain members of the medical profession must devote themselves entirely to this branch of science whilst the others in tending the sick obtain the advantage of laboratory experience. Combination between the labour of each class is, of course, essential. We must not arrive at conclusions purely by experiments *in vitro*, and results obtained in the laboratory must therefore be constantly compared with observations recorded in the wards and in the post-mortem room. Upon the worker in pathological laboratories there devolves the testing, and in some instances preparing, the serums, vaccines, and other preparations now used in the treatment of disease. The gelatin treatment of aneurysm, for instance, is dependent for its safety on the proper sterilisation of the gelatin, and this can only be effectually carried out in well-appointed laboratories. The workers in the laboratories connected with large hospitals have abundant opportunities of obtaining and examining the products of bacterial invasions and most valuable results may be looked for in the future from such observations. It is obvious once more that such investigations can be only carried out adequately by those men who have devoted much thought to this special branch of science, and who therefore have not the time, as a rule, to undertake the duties of the ordinary practice of their profession. The importance of such inquiries cannot be exaggerated; in the laboratories of clinical and pathological research we possess one of the most valuable aids to the diagnosis and treatment of disease introduced in modern times.

In recognition of the part that scientific pathology now plays in assisting the practitioner in the daily routine of his duties, laboratories have been established in most of the large towns to which specimens of all kinds may be sent for examination and results speedily obtained. With these establishments always ready to aid him the practitioner can depend on trustworthy reports being at once afforded him. Consequently, as we have suggested above, the student need not feel it incumbent upon himself to devote such an amount of time to laboratory methods as is required to obtain perfection of technique. Some knowledge of bacteriology and cytology, however, will considerably add to the interest of his observations when in the future he is engaged in the actual practice of his profession, and we therefore would advise him to take every opportunity of noting the reports emanating from the laboratory attached to his hospital, and also to attend demonstrations which may be given on the subject.

(Young J. Pentland, *two* volumes, vol. i., 10*s.* 6*d.*; vol. ii., 12*s.* 6*d.*). Professor CUNNINGHAM has also published a splendid *Text-book of Anatomy* (Young J. Pentland, 1903, 31*s.* 6*d.* net) written by himself and nine other competent contributors. The book is profusely illustrated with original drawings and much in it which deals with the topographical relations of the viscera departs considerably from convention. This is a book from which the able student can derive much suggestive information. We may also mention MACALISTER'S *Human Anatomy* (Griffin, 36*s.*). For both these examinations STEWART'S *Physiology*, fourth edition (Baillière, Tindall, and Cox, 15*s.*), or FOSTER'S *Physiology* (Macmillan and Co., Limited, in four parts, 10*s.* 6*d.* each, and appendix, 7*s.* 6*d.*) should be read.

For the M.D. in medicine of the University of London and for the Membership of the Royal College of Physicians of London we would recommend the following books. For the general foundation the student cannot do better than read FAGGE'S *Medicine*, edited by PYE-SMITH (Churchill, fourth edition, two vols., 42*s.*). This may be supplemented by CLIFFORD ALLBUTT'S *System of Medicine* (in eight volumes, sold separately 25*s.* net each), which contains a number of valuable monographs, and SAVILL'S *System of Clinical Medicine*, a very original work. It is also advisable to read special works, such as POWELL'S *Diseases of the Lungs and Pleura* (Lewis, 18*s.*) or WEST'S *Diseases of the Organs of Respiration* (Griffin, 36*s.*); GOWERS'S *Diseases of the Nervous System* (J. & A. Churchill, vol. i., 16*s.*; vol ii., 20*s.*); BABCOCK'S *Diseases of the Heart* (Appleton, 25*s.*); CROCKER'S *Diseases of the Skin* (Lewis, 28*s.*); VON JAKSCH'S *Clinical Diagnosis* (Griffin, 24*s.*); JUDSON BURY'S *Clinical Medicine* (Griffin, 21*s.*); and SIDNEY MARTIN'S *General Pathology*. For the higher examinations a sound knowledge of bacteriology is needed. STERNBERG'S *Bacteriology* (Churchill, 26*s.*), HEWLETT'S *Bacteriology* (Churchill, 12*s.* 6*d.*), or MUIR and RITCHIE'S *Bacteriology* (Pentland, 12*s.* 6*d.*) will be sufficient. For all these higher examinations it is important that the candidate should be acquainted with the current literature of the subject which has not yet found its way into the text-books. For this current literature he must turn to the pages of THE LANCET and other medical journals. The degree of Doctor of Medicine in the University of London can also only be taken in pathology, mental diseases, midwifery and diseases of women, and State medicine. In each speciality a distinctly high order of knowledge is expected and exacted.

For the examination for the M S. London and for the final F.R.C.S. it is of the greatest importance that the student should remember that his anatomical knowledge must be as extensive and thorough as it was at his previous steps. The student will be already furnished with a good general knowledge of surgery, but it is necessary for him to read a general treatise on the subject, such as TREVES'S *System of Surgery* (Cassell, 48*s.*), TILLMANN'S *Surgery* (Kimpton, 63*s.*), *The International Text-Book of Surgery*, edited by PEARCE GOULD and WARREN (Saunders, two vols., 42*s.*), or KEEN and WHITE'S *Surgery* (Saunders, two vols., 30*s.*). It is also very desirable that he should read some monographs. We have on previous occasions recommended many of the following: BLAND SUTTON on *Tumours* (Cassell, 21*s.*), TREVES on *Intestinal Obstruction* (Cassell, 21*s.*), TUBBY on *Deformities* (Macmillan, 17*s.*), MORRIS on *Surgical Diseases of the Kidney and Ureter* (Cassell, 42*s.*), HOWARD MARSH on *Diseases of the Joints* (Cassell, 12*s.* 6*d.*), and BUTLIN and SPENCER on *Diseases of the Tongue* (Cassell, 21*s.*). Our reviews during the past year and the advice of teachers and lecturers will enable the student to add to this list. A more advanced treatise on operative surgery than that recommended for the Conjoint Examination is also needed, and either JACOBSON and STEWARD'S *Operations of Surgery* (Churchill, 42*s.*) or TREVES and HUTCHINSON'S *Operative Surgery* (Cassell, 42*s.*) will be perfectly satisfactory.

RECENT MEDICAL LITERATURE.

In drawing attention to some of the more interesting and important publications of the year we do not attempt in the course of a few brief remarks to furnish a substitute for detailed criticism. The books mentioned have all been noticed in our own columns and in those of our contemporaries during the past 12 months, and the reasons why we think it right to give them further mention appear in our reviews.

In medicine during the year we have to chronicle the issue of new editions of two excellent text-books. Dr. F. T. ROBERTS'S *Theory and Practice of Medicine* makes its appearance in a tenth edition, a fact which proclaims the book one of the best text-books of the day. The remarks on contagion and infection have been completely remodelled in view of the great advances made in bacteriology since the last edition, and the section on malaria has been entirely rewritten—in short, every pains has been taken to provide a modern and comprehensive manual. Dr. T. K. MONRO'S *Manual of Medicine* makes a second appearance and, although certain details in a very large book did not escape criticism, there is no doubt that we have in this work an excellent system of medicine both for the practitioner and the student. A tenth edition of Dr. T. H. GREEN'S *Introduction to Pathology and Morbid Anatomy* has been published under the editorship of Dr. BOSANQUET, and although no change has been made in the general plan of the work thorough revision has been entailed by the rapidity of pathological progress.

One of the most interesting books on surgery published during the year is the report on the Surgical Cases occurring in the South African War, a compilation edited by Surgeon-General W. F. STEVENSON, C.B., and containing contributions from Lieutenant-Colonel G. H. SYLVESTER, Lieutenant-Colonel S. HICKSON, Major MALLINS, and Major M P. HOLT, D.S.O., all members of the Army Medical Service. The report is worthy of close study not only by military surgeons but by all in civil practice, for it brings home to the civilian surgeon the extent to which the conditions met with in peace are modified as far as they obtain to hospital practice in war. Lieutenant-Colonel ROBERT CALDWELL'S *Military Hygiene* may well be read as a pendant to the report. It should become the *vade mecum* with the officers of the Royal Army Medical Corps and the Indian Medical Service, and is the most valuable treatise on the subject since the classic work of the late Professor Parke.

Two works on pharmacology and therapeutics may well find a permanent home in the libraries of medical men. One is Dr. WALTER DIXON'S *Manual of Therapeutics*, the object of which is to give the student a simple account of the science viewed from the modern standpoint, and the other is the colossal American compilation, the *National Standard Dispensatory*, edited by Dr. HOBART A. HARE and contributed to by many distinguished American professors of therapeutics, pharmacology, chemistry, and botany. The *Dispensatory* is a storehouse of modern pharmacological and pharmaceutical knowledge; it has been compiled with earnestness and care, and British practitioners may note that the pharmaceutical actions and uses of all the medicines included in our Pharmacopœia will be found thoroughly dealt with. Dr. DIXON'S work is of a totally different scope and is not, indeed, a text-book of materia medica at all but a compact review of the leading facts and theories of pharmacology treated in a modern manner. The study of pharmacology of recent years has been neglected by the medical profession, and Dr. DIXON'S book may do valuable service in changing this attitude of coldness.

Climate nowadays bulks largely in the mind of the

Essentials of Histology (Longmans, 9*s.* net).—BRODIE'S *Essentials of Experimental Physiology* (Longman's,, 6*s.* 6*d.*).—These three books should be read to supplement HALLIBURTON'S *Kirkes' Physiology.*—STARLING'S *Elements of Human Physiology* (J. & A. Churchill, 12*s.* 6*d.*) is in its fourth edition and is also an excellent text-book.

THIRD EXAMINATION.

Medicine.—OSLER'S *Principles and Practice of Medicine*, sixth edition, thoroughly revised (Sidney Appleton, 21*s.* net).—A clear, well-arranged, and very readable book, perfectly up to date.—TAYLOR'S *Manual of the Practice of Medicine.*—(J. & A. Churchill, 16*s.*) Either of these books will be sufficient.—CARTER'S *Elements of Practical Medicine* (H. K. Lewis, 10*s.* 6*d.*) will serve as a sound foundation, but does not contain enough for the Conjoint examination.

Applied Anatomy.—TREVES'S (assisted by ARTHUR KEITH, M.D.) *Surgical Anatomy*, new edition (Cassell, 9*s.*)—HOLDEN'S *Landmarks, Medical and Surgical* (J. & A. Churchill, 3*s.* 6*d.*) also thoroughly deserves the popularity it has so long enjoyed as a book on applied anatomy, while the supplementary volume on Surgical Anatomy in QUAIN'S *Anatomy* by THANE and GODLEE (Longmans, 6*s.* 6*d.*) is excellent.

Pathology.—GREEN'S *Pathology* (Renshaw, 17*s.*) is an excellent work. — LAZARUS BARLOW'S *General Pathology* (J. & A. Churchill, 21*s.*).—BOWLBY'S *Surgical Pathology* (J. & A. Churchill, 10*s.* 6*d.*).—CURTIS'S *Essentials of Bacteriology* (Longmans, 9*s.*).

Materia Medica.—MITCHELL BRUCE'S *Materia Medica* (Cassell, 7*s.* 6*d.*) or HALE WHITE'S *Materia Medica* (Churchill).

Forensic Medicine.—LUFF'S *Forensic Medicine* (Longmans, 24*s.*). — AUBREY HUSBAND'S *Forensic Medicine* (Simpkin, 10*s.* 6*d.*).—Both books fit the examination.

Public Health.—PARKES and KENWOOD'S *Hygiene*, second edition (Lewis, 12*s.*).—This book is practically the seventh edition of Dr. Louis Parkes's *Hygiene.*—WHITELEGGE and NEWMAN'S *Hygiene* (Cassell, 7*s.* 6*d.*).—HAMER'S *Manual of Hygiene* (J. & A. Churchill, 12*s.* 6*d.*).—*A Handbook of Hygiene* (C. Griffin and Co., Limited, 8*s.* 6*d.* net), by A. M. DAVIES, Lieutenant-Colonel, R.A.M.C.—Each of these books may be recommended for the examination.

Surgery.—ROSE and CARLESS'S *Manual of Surgery*, sixth edition (Baillière, Tindall, and Cox, 21*s.*).—This book contains all that is necessary for the examination and has been regularly kept up to date.—WALSHAM and SPENCER'S *Theory and Practice of Surgery* (J. & A. Churchill, 15*s.*) is now in its ninth edition and deserves its popularity.—TREVES'S *System of Surgery* (Cassell, 48*s*) and TILLMANN'S *Surgery* (Appleton, 63*s.* net) may be consulted as books of reference. The student should also read a work on operative surgery, and the best for this purpose is TREVES'S *Student's Handbook of Surgical Operations* (Cassell, 7*s.* 6*d.*)—ALLINGHAM'S *Operative Surgery* (Baillière, Tindall, and Cox) is also good.—Every student will find SPENCER'S *Outlines of Practical Surgery* (Baillière, Tindall, and Cox, 12*s.* 6*d.*) of great help to him.

Midwifery.—GALABIN'S *Midwifery* (J. & A. Churchill, 15*s.*) or DAKIN'S *Midwifery* (Longmans, 18*s.*) is most exactly fitted for this examination. In Gynæcology we recommend HERMAN'S *Diseases of Women* (Cassell, 25*s.*). HERMAN'S *Difficult Labour* (Cassell, 12*s.* 6*d.*) may also be read.

The student should also read HARE'S *Practical Diagnosis*, fifth edition (Kimpton, 21*s.* net), which explains the use of symptoms in the diagnosis of disease. This book will, of course, only appeal to those in the fifth year of the curriculum, but to them it will prove very useful and suggestive. He must also read a Text-book of Ophthalmic Surgery; SWANZY'S book (Lewis, 12*s.* 6*d.*) is suggested as containing all that he is required to know. He should also read a work on Dermatology, such as NORMAN WALKER'S *Introduction to Dermatology* (Wright, 7*s.* 6*d.*) or MALCOLM MORRIS'S *Diseases of the Skin* (Cassell, 10*s.* 6*d.* net).

This does not seem a very large library for an earnest student to read in a curriculum extending over five years, but if the books are read properly they will amply suffice. For they have to be thoroughly mastered and completely assimilated. It must be acknowledged that whatever care be devoted to the making of a selective list the result will not be always perfectly satisfactory for every student. There is no work on any subject which is suitable for all candidates and all examinations. When there are two books of equal standing it may be impossible to say which is the better of the two, and it will be seen that we have in several cases given the reader a choice of alternatives. The proper foundation for a student's knowledge must be laid in his lectures and his practical work, and in some rare cases lectures and attendance in wards and at out-patient departments may entirely obviate the necessity for any text-book. To practical work especially the student must pay attention, for the knowledge learnt by practice is much more easily retained than that learnt only from a book, but in nearly all cases a treatise needs to be read.

BOOKS RECOMMENDED FOR THE HIGHEST QUALIFICATIONS.

The list of books given above as necessary to be read before the student can make certain of obtaining the diplomas of the Conjoint Board will if absolutely mastered go very far to take him through any higher examination—especially if his practical work be good and if he have an orderly mind and a ready wit, so that he is at his best during his tests; but in certain directions the aspirant for the medical degrees of the University of London, the Fellowship of the Royal College of Surgeons of England, and the Membership of the Royal College of Physicians of London must read more advanced works. The degrees of other universities may also require from their candidates a larger range of reading, but in these it is chiefly for the final examination, the standard of which is (or is expected to be) higher than the standard of the pass examinations of the various corporations. In the case of the University of London the increased stringency in the tests is felt from the beginning, although the matriculation is not so hard as it used to be; while the first examination for the Fellowship of the Royal College of Surgeons of England is one of the hardest and most uncertain examinations known to us. In making the suggestions which follow we premise in the student a knowledge of the simpler works.

For the Preliminary Scientific Examination of the University of London RIDEAL'S *Practical Organic Chemistry* (Lewis, 2*s.* 6*d.*), TILDEN'S *Inorganic Chemistry* (J. & A. Churchill, 10*s.*), REMSEN'S *Organic Chemistry* (Macmillan and Co., Limited, 6*s.* 6*d.*), and BERNAYS' *Practical Chemistry* (J. & A. Churchill, 4*s.* 6*d.*) are recommended. DANIELL'S *Text-books of Physics* (Macmillan and Co., Limited, 21*s.*) should be supplemented by DESCHANEL'S well-known volumes, LOWSON'S *Botany* (Clive, 6*s.* 6*d.*), and WELLS and DAVIES'S *Zoology* (Clive, 6*s.* 6*d.*). MUDGE'S *Zoology* (Arnold and Co., 6*s.*) is a book which is intended exactly to fit the needs of this examination, while the course of botanical reading should include SCOTT'S *Structural Botany* (Adam and Charles Black, two volumes, 3s. 6d. each.). For the Intermediate Examination in Medicine of the University of London and for the first Fellowship of the Royal College of Surgeons of England MORRIS'S *Anatomy* (J. & A. Churchill, 30*s.* net) is, on the whole, the best text-book, but the student should also read Embryology by SCHÄFER and Splanchnology by SCHÄFER and SYMINGTON in QUAIN'S *Anatomy* (Longmans, 9*s.* and 16*s.* respectively) and revise his osteology from time to time by GRAY'S *Anatomy* (Longmans, 32*s.* net) and his practical work by CUNNINGHAM'S *Practical Anatomy*

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GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM.

Registration of Medical Students.—The following are the General Medical Council's Regulations in reference to the registration of students in medicine:—

Every medical student shall be registered in the manner prescribed by the General Medical Council. The registration of medical students shall be placed under the charge of the branch registrars. Every person desirous of being registered as a medical student shall apply to the branch registrar of the division of the United Kingdom in which he is residing; and shall produce or forward to the branch registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has attained the age of 16 years, and has commenced medical study. The branch registrar shall enter the applicant's name and other particulars in the Students' Register and shall give him a certificate of such registration. Each of the branch registrars shall supply to the several licensing bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students. The commencement of the course of professional study recognised by any of the qualifying bodies shall not be reckoned as dating earlier than 15 days before the date of registration. In addition to the universities and schools of medicine there are several scientific institutions in 17 English towns and in Dublin where medical study may be commenced. In London these institutions are the Birkbeck Institute, the East London Technical College, the Central Technical College, Westfield College, Battersea Polytechnic Institute (day classes), Bedford College, Royal Holloway College, and the Royal College of Science. Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council.

The Preliminary Examination in General Education, required to be passed previously to registration as a medical student, shall be as follows.—

1. English language, including grammar and composition. 2. Latin, including grammar, translation from unprescribed Latin books, and translation of English passages into Latin. 3. Mathematics, comprising (a) arithmetic, (b) algebra, including easy quadratic equations, and (c) geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions. 4. One of the following subjects: (a) Greek, (b) a modern language.

In many cases the Council will not accept certificates of pass in Preliminary Examination in General Education unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of medicine have been passed at the same time.

A degree in Arts of any university of the United Kingdom or of the colonies or a certificate of having passed the final examination for a degree in Arts or Science of any university in the United Kingdom shall be considered a sufficient testimonial of proficiency.

The following is a list of Examining Bodies whose examinations in general education are recognised by the General Medical Council as qualifying for registration as a medical or dental student.

I.—UNIVERSITIES IN THE UNITED KINGDOM.

University of Oxford.—Junior Local Examinations. Senior Local Examinations. Higher Local Examinations. Responsions. Moderations.

University of Cambridge.—Junior Local Examinations. Senior Local Examinations. Higher Local Examinations. Previous Examination. General Examination.

University of Durham.—Matriculation Examination for Science, Letters, and Music. Senior Local Examinations.

University of London.—Matriculation Examination.

Victoria University of Manchester.—Matriculation Examination.

University of Birmingham.—Matriculation Examination.

University of Liverpool.—Matriculation Examination.

University of Leeds.—Matriculation Examination.

University of Wales.—Matriculation Examination.

University of Edinburgh.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of Aberdeen.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of Glasgow.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of St. Andrews.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery. Final Examination for the diploma of L.L.A.

University of Dublin.—Public Entrance Examination. Examination for the first, second, third, or fourth year in Arts.

Royal University of Ireland.—Matriculation Examination.

Oxford and Cambridge Schools Examination Board.—Lower certificate (to fulfil the Council's requirements). Higher certificate (to include the required subjects). Leaving certificate (the subjects to be passed at one time).

II.—MEDICAL LICENSING BODIES.

Royal Colleges of Physicians and Surgeons in Ireland.—Preliminary Examination.

III.—EDUCATIONAL BODIES OTHER THAN UNIVERSITIES.

College of Preceptors.—Examination for a First Class Certificate; Preliminary Examination for Medical Students.

Intermediate Education Board of Ireland.—Middle Grade Examination; Senior Grade Examination.

Educational Institute of Scotland.—Preliminary Medical Examination.

Scottish Education Department.—Leaving Certificates in Lower and Higher Grades and in Honours.

Central Welsh Board.—Senior Certificate Examination.

IV.—INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

Every Certificate from Indian, Colonial, and Foreign Universities and Colleges must contain evidence that the Examination has been conducted by or under the authority of the Body granting it, must include all the subjects required by the General Medical Council, and must state that all the subjects of Examination have been passed in at one time; copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose. In the case of Natives of India or other Oriental countries whose vernacular is other than English an Examination in a Classical Oriental Language may be accepted instead of an Examination in Latin. The German Abiturienten-Examen of the Gymnasia and Real-gymnasia and the examinations entitling to the French diplomas of Bachelier ès Lettres and Bachelier ès Sciences are recognised by the General Medical Council.

Professional Education.—The course of professional study after registration shall occupy at least five years. The Final Examination in Medicine, Surgery, and Midwifery must not be passed before the close of the fifth academic year of medical study.

H. E. Allen, LL.B., Registrar of the General Council and of the Branch Council for England, 299, Oxford-street, London, W.—James Robertson, Registrar of the Branch Council for Scotland, 48, George-square, Edinburgh.—Richard J. E. Roe, Registrar of the Branch Council for Ireland, 35, Dawson-street, Dublin.

POWERS AND DUTIES OF THE GENERAL MEDICAL COUNCIL.

As there is apparently, even among members of the medical profession, a great amount of ignorance as to the powers and duties of the General Medical Council, we think it well to lay clearly before our readers what the General Medical Council is and also what it is not.

Many of the false ideas on the subject are due to the use of the shortened title, "General Medical Council." The full title is, "General Council of Medical Education and Registration of the United Kingdom." This title is in accordance with the Medical Act of 1858, by which the General Medical Council was established to enable persons requiring medical aid to distinguish qualified from unqualified practitioners. Registrars were to be appointed by the General Council and by the Branch Councils to keep registers of qualified persons. Registrars were bound by Section XIV. of the Act to keep their registers correctly, a duty which, mainly owing to the apathy of thoughtful physician, for the world is now so opened up that to advise patients to go abroad is no longer in many instances an amiable method of telling them that nothing more can be done. A large number of our population, if the worst comes to the worst, can find sufficient money to change latitude and longitude in search of health. Dr. William R. Huggard, Consul at Davos, and a well-known authority on climatology and balneological treatment of disease, has produced a handbook of *Climatic Treatment* which gives in a readable form information which the general practitioner nowadays is expected to have at his fingers-ends. Dr. Huggard is critical in his consideration of climate, and the rigid analysis to which he subjects health resorts and watering-places makes his book of real practical value.

No subject concerns the politician, the humanitarian, or the sanitarian more deeply than the grave rate of infantile mortality that prevails in so many localities. Speaking generally, the care of the infant is recognised as the most effective way of combating conditions of race deterioration, so that the vigorous discussion which has recently taken place about our national physique has drawn the attention of the public constantly to the conditions of child-life. On the subject of infantile mortality Dr. George Newman, medical officer of health of Finsbury, has written an authoritative volume, so far the only modern text-book, we believe, of any pretension to scientific accuracy that is available for the English reader on the subject. The mass of information contained within the comparatively brief space of 360 pages is somewhat surprising, but the author has his interesting subject at his fingers' ends and has made good uses of his sources of information. Of many causes of the grave mortality among infants which our statisticians have to report to us maternal ignorance is not the least influential, and as this is now recognised by all whose work lies among the poorer classes it is not surprising that many books dealing with the upbringing of children are published annually. In this place we need only refer to one little book entitled *The Care and Management of Delicate Children*, by Dr. Percy Lewis, which, without being particularly original, summarises in a very sensible and temperate manner the best theories of treatment. Dr. Lewis's book is intended, no doubt, as much for the public as for medical men, but many practitioners will benefit by the information it contains. New editions of Dr. Henry Ashby's *Diseases of Children* and Dr. L. Emmett Holt's *Diseases of Infancy and Childhood* have appeared during the year.

The second volume of Mr. J. H. Parsons's *Pathology of the Eye* has been published and maintains the high standard reached in the first volume. A very large quantity of original matter is presented to the reader, as well as convenient summaries of the observations of other authors. Profuse illustration, clear style, and complete mastery of the subject conduce to the production of an excellent treatise.

Two works on physiology have appeared during the year which are worth bringing to the attention of our readers. Dr. W. H. Howell's *Text-book for Medical Students and Physicians* we have recommended in a recent review as one of the best books on physiology that has lately come under our hands. The subjects are concisely treated, a small but sufficient number of references is given, and the application of physiology to the many pathological problems of modern medicine is clearly indicated. The second work, *Recent Advances in Physiology and Bio-Chemistry*, is edited by Dr. Leonard Hill and has been contributed to by some of our best-known physiological thinkers. The work will prove of value to students in higher examinations as well as to medical men whose lot it is to have opportunity for carrying on research work.

A right understanding of the relationship existing between the medical man and his patient is highly important to the medical man, and if the public considered this relationship more accurately many professional grievances would disappear. That the lay press does not always rightly appreciate the position of the medical profession is shown by the not infrequent occasions on which statements which are unfair to the practitioner are published, and the public, taking their cue from this biased information, in turn do scant justice to our science. The public is not well informed as to the difficulties of the medical man. *Medicine and the Public*, by Dr. S. Squire Sprigge, a book the greater part of which appeared in the columns of The Lancet, has been written with the object of making clear to the lay mind the disabilities under which much medical practice is carried on. In it members of the medical profession and medical students will find discussed in very plain and simple terms most of the professional problems of the day, while references to The Lancet will provide an easy opportunity of obtaining fuller information upon any particular point.

MEDICAL TEACHERS.

Mr. R. O. B. Kerin, B.A. London, first in First Class Honours in Classics, assisted by a staff of B.A. and B.Sc. Honour Graduates, prepares candidates in class and by private tuition for Medical Preliminaries, London Matriculation, Preliminary Scientific Inter. Science, First Conjoint, First M.B. Lond., Oxon., and Camb., &c. Hospital Scholarships. Biological, Chemical, and Physical Laboratories.—Carlyon College, 55 and 56, Chancery-lane, W.C.

The University Examination Postal Institution prepares candidates either through the post or orally for all Medical Examinations. Ten of the regular staff hold the M.D. or M.S. degree, of whom seven are gold medallists. Laboratory, Microscopic, and Museum work if desired. The Manager is Mr. E. S. Weymouth, M.A., 27, Southampton-street, Strand, London, W.C.

Special preparations, in class, privately, and by correspondence, for the Triple Qualification, Edinburgh. Also for Fellowship Examinations of the Royal College of Surgeons, Edinburgh, and M.D. Brussels. Resident pupils received.—Address, Class Rooms, 7, Chambers-street, Edinburgh.

Mr. D. W. Patterson, M.B., B.S. Durh. (First Honours), Luke Armstrong and Charlton Scholar, Gibson Prizeman, Coaches in all the professional subjects of the M.D. Durh. exam.—Dr. Patterson, 26, Ellison-place, Newcastle-on-Tyne.

Coaching by experienced Honours Graduates (Medicine, Surgery, Science) for M.D. (Lond. and Cambridge), M.D. Durham (15 years' standing), M.D. Brux., Primary Fellowship, D.P.H., the Services, 1st, 2nd, and Final Conjoint. Tuition in class, privately or by post, in Medicine, Surgery, Anatomy, Physiology, Materia Medica, Chemistry, Biology, &c. Laboratory. Special Correspondence Courses for M.D. Lond., M.D. Durh., F.R.C.S., D.P.H., &c.—E. Gooch, B.Sc., 115, Gower-street, W.C.

Coaching in Anatomy and Physiology with practical work and instruction in Chemistry, Physics, Materia Medica, and Biology is given by B.Sc., 9, Heathcote-street, Gray's Inn-road, London.

D.P.H. Classes.—These classes qualify for the various Examining Boards. Information can be obtained from Mr. G. H. Gemmell, F.I.C., F.C.S., Chemical Laboratory, School of Medicine, 4, Lindsay-place, Edinburgh.

Correspondence Classes for the Fellowship of the Royal College of Surgeons, Edinburgh.—Particulars from Dr. Knight, 7, Chambers-street, Edinburgh.

Indian Medical Service and R.A.M.C. Classes are held at the Passmore Edwards' Settlement, Tavistock-place, Russell-square, London, W.C.

Mr. I. Beckton, 37, Store-street, Bedford-square, W.C., prepares students for Matriculation, Preliminary Medical and Law, and other examinations.

The London College of Chemistry, Pharmacy, and Botany, 323, Clapham-road, London, S.W.—Principal, Henry Wootton, B.Sc. Lond. This College is established for the purpose of providing thorough and practical instruction in all branches of science, especially for students preparing for Pharmaceutical, Medical, and University Examinations. There are laboratories and class rooms, and special classes are held daily in preparation for the Medical and Pharmaceutical Preliminary Examination of the College of Preceptors, fee 4 guineas per term of three months commencing Sept. 25th.

Westminster College of Chemistry and Pharmacy, Ltd., Trinity-square, Borough, S.E.—Principal, G. S. V. Wills, F.L.S.; Secretary, J. E. Walden. Special instruction given to medical and dental students in chemistry, physics, and pharmacy. Fees and time by arrangement. Ladies are prepared for the Dispenser's Examination of the Apothecaries' Hall at the Apothecaries' College for Ladies, 112, St. George's-road, Southwark, S.E., which has been recently established by the above College.

Instructors in Elocution, &c.

Mr. William Van Praagh, the public introducer of the Pure Oral System of teaching Deaf Mutes, has made the subject of Lip-reading and the cure of all Defects of Speech, both acquired and congenital, his special study. Papers on the various subjects can be had at 11, Fitzroy-square, W.

Mrs. Emil Behnke gives instruction in Voice Training and treat- Stammering and other Defects of Speech at 18, Earl's-court square, S.W.

examination every year by most of the Colleges. Notices of vacancy, &c., are published in the *University Gazette*, and all particulars may be obtained by application to the Science Tutors of the several Colleges. One Radcliffe Travelling Fellowship is awarded annually after an examination held in February. It is tenable for three years and is of the annual value of £200. The examination is partly scientific, partly medical. Candidates must be graduates in Medicine of the University. The holder must travel abroad for the purpose of medical study. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years standing for an original research in some Biological subject, including Physiology or Pathology.

The Philip Walker Studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of Pathological Research.

More detailed information may be obtained from the University Calendar; from the Examination Statutes, 1902, which contain the official schedules of the several subjects of examination in both Arts and Medicine; from the Student's Handbook to the University (all of which are published by the Clarendon Press); from the Regius Professor of Medicine; and from the Professors in the several departments of medical science.

The Lecturers for the various subjects are as follows:—Medicine: W. Osler, D.M., Regius Professor. Professor of Human Anatomy: A. Thomson, M.A. Waynflete Professor of Physiology: F. Gotch, M.A., D.Sc. University Lecturer on Physiology: J. S. Haldane, M.A. Histology: G. Mann, D.M. Edin. Physiological Chemistry: Walter Ramsden, D.M. Practical Physiology: H. M. Vernon, D.M. Pathological Histology and Practical Bacteriology: The Professor of Pathology, J. Ritchie, D.M. Edin. Lichfield Lecturer in Clinical Medicine: W. T. Brooks, M.A. Lichfield Lecturer in Clinical Surgery: H. Anglin Whitelocke, F.R.C.S. Organic Chemistry in Relation to Medicine, &c., followed by Practical Work: W. W. Fisher, M.A. (Aldrichian Demonstrator), and J. E. Marsh, M.A. Lecturer in Materia Medica and Pharmacology: W. J. Smith Jerome, B.M. Lond. Linacre Professor of Comparative Anatomy: W. F. R. Weldon, M.A., D.Sc. Lees Reader in Anatomy: J. B. Thompson, M.A. Elementary Animal Morphology (Practical): The Aldrichian Demonstrator, E. Goodrich, M.A., and assistants. Sherardian Professor of Botany: S. H. Vines, M.A. Waynflete Professor of Chemistry: W. Odling, M.A. Lees Reader in Chemistry: G. Brereton Baker, M.A. Laboratory Instruction: W. W. Fisher, M.A., J. Watts, M.A., and J. E. Marsh, M.A. Wykeham Professor of Physics: J. S. E. Townsend, M.A. Professor of Experimental Philosophy: R. B. Clifton, M.A. Instruction in Practical Physics: R. B. Clifton, M.A., J. Walker, M.A. Elementary Heat and Light: Lees Reader in Physics, R. E. Baynes, M.A. Elementary Mechanics: F. J. Jervis-Smith, M.A.

In addition to the University Lectures and classes the several Colleges provide their undergraduates with tuition for all examinations up to the B.A. degree.

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the Colleges, or as a non-collegiate student, and keep nine terms (three years) by residence in the University. He must pass the Previous Examination in Classics, Mathematics, &c., which may, and should if possible, be done before coming into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board, the Oxford or Cambridge Senior Local Examinations, the London Matriculation Examination, the Scotch Education Department, Responsions at Oxford, and the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield. He may then devote himself to medical study in the University, attending the hospital and the medical lectures, dissecting, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts, either continuing mathematical and classical study and passing the ordinary examinations for B.A. or going out in one of the Honour Triposes. The Natural Sciences Tripos is the most appropriate, as some of the subjects are practically the same as those for the first and second M.B. examinations.

For the degree of *Bachelor of Medicine (M.B.)* five years of medical study are required. This time may be spent in Cambridge or at one of the recognised Schools of Medicine. The first three or four years are usually spent in Cambridge, the student remaining in the University till he has passed, say, the examination for the Natural Sciences Tripos and the first and second, and the first part of the third, examinations for M.B. Cambridge being now a complete School of Medicine, all the requisite lectures and hospital practice may be attended here, and many students remain to attend lectures and hospital practice until they have passed the first part of the third examination for M.B. The supply of subjects for Dissection is abundant, and the laboratories for Pathology, Bacteriology, and Pharmacology are well equipped. Addenbrooke's Hospital provides for the necessary clinical training.

There are three examinations for M.B. The *first* includes Chemistry and other branches of Physics and Elementary Biology. These parts may be taken together or separately. The *second* includes Human Anatomy and Physiology. The *third* is divided into two parts—viz., (1) Pharmacology and General Pathology; (2) Principles and Practice of Surgery, Midwifery and Diseases Peculiar to Women, Principles and Practice of Physic. The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting room, and in the laboratories. An Act has then to be kept in the Public Schools, by the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic.

As Operative and Clinical Surgery now form parts of the third M.B. examination candidates who have passed both parts of that examination are admitted to the registrable degree of *Bachelor of Surgery (B.C.)* without separate examination and without keeping an Act.

The degree of *Doctor of Medicine (M.D.)* may be taken three years after that of M.B. or four years after that of M.A. An Act has to be kept, consisting of an original Thesis sustained in the Public Schools with *vivâ voce* examination; and an extempore essay has to be written on some subject relating to Physiology, Pathology, the Practice of Medicine, or State Medicine.

For the degree of *Master of Surgery (M.C.)* the candidate must have passed all the examinations for B.C., or if he is an M.A. have obtained some other registrable qualification in surgery. He is required either (1) to pass an examination in Surgical Anatomy and Surgical Operations, Pathology, and the Principles and Practice of Surgery, and to write an extempore essay on a Surgical Subject; or (2) to submit to the Medical Board original contributions to the advancement of the Science or Art of Surgery. Before he can be admitted to the examination two years at least must have elapsed from the time when he completed all required for the degree of B.C. Before submitting original contributions he must have been qualified at least three years.

An abstract of the Regulations and Schedules of the range of the examinations in Chemistry, Physics, Biology, Pharmacology, and General Pathology may be obtained upon sending a stamped directed envelope to the Registrary, Cambridge.

UNIVERSITY OF LONDON.

The Matriculation Examination.—The examinations take place three times in each year—namely, on Sept. 15th (if that day be a Monday, or if not, on the Monday next preceding the 15th), on the second Monday in January, and on the second Monday in June (or July, as may be hereafter determined). The examinations in January and June (or July), but not that in September, may be held not only at the University of London, but also, under special arrangement, in other parts of the United Kingdom or in the colonies. Every candidate must, on or before August 24th for the September examination, on or before Nov. 25th for the January examination, and on or before April 25th for the June (or July) examination, apply by postcard to the Principal for a form of entry, of which the first in order must be returned 14 days before the commencement of the September examination, the second on or before Dec. 1st, and the third on or before May 1st, accompanied in the same cover by a certificate showing that the candidate has completed his sixteenth year, and by his fee for the examination. A certificate from the Registrar-General in London or from the superintendent members of the medical profession, has not been adequately performed.

It will thus be seen that the General Medical Council is primarily a body of gentlemen charged with looking after the education and registration of medical practitioners. The sole penalty it can inflict is to strike a man's name off the Medical Register. It is as well here to put down the advantages, such as they are, of being duly registered. A duly registered practitioner may sue in the courts of law for the recovery of charges for medical attendance or advice, or surgical attendance or advice, or for the supply of medicine, or for the performance of any operation—provided that he is not debarred from suing by being a Fellow or a Member of any corporation which objects to its Fellows or Members so suing. He may be exempted, if he so desire, from serving on juries, from serving sundry corporate and parochial offices, and from serving in the Militia. Only a registered practitioner can hold appointments in the navy, army, and sundry Poor-law and other institutions. Only a registered person can sign a valid medical certificate. Removal of the name from the Register debars a man from all the above-mentioned privileges.

The General Medical Council is in no way a medical protection society or a medical defence union. It is not a professional union or a guild charged with looking after the interests of the medical profession after the manner of the old trades guilds, except in so far as it is concerned with the education of medical students. It has no powers over any member of the medical profession except to remove the name of any offending member from the roll of the profession or Medical Register. It cannot take away any degree, or diploma, or licence, and even if a practitioner is struck off the Medical Register there is nothing in the existing state of the law to prevent such practitioner continuing to practise, provided that he does not use any name or title implying that he is registered. Practitioners may be removed from the Medical Register (1) if convicted of felony or misdemeanour in England, or in Ireland, or in Scotland of any crime or offence, and (2) on being adjudged by the General Medical Council to have been guilty of "infamous conduct in a professional respect."

The General Medical Council is, we repeat, primarily a body charged with looking after medical education; it is but little concerned with medical politics and, as a matter of fact, the time of the Council is almost entirely taken up with considering educational and registration matters, the latter including the penal cases of removal from the Register. The Council at present consists of 33 members, of whom, as will be seen by the annexed list, all but 10 are official representatives of some corporate body. Five members are chosen by the Crown on the advice of the Privy Council, and five others are elected by the members of the medical profession as Direct Representatives.

President of the General Council.—Dr. Donald MacAlister. Members of the General Council.—Dr. Norman Moore, chosen by the Royal College of Physicians of London; Mr. Henry Morris, Royal College of Surgeons of England; Sir Hugh Reeve Beevor, Bart., Apothecaries' Society of London; Mr. Arthur Thomson, M.B., University of Oxford; Dr. Donald MacAlister, University of Cambridge; Sir George Hare Philipson, University of Durham; Dr. Philip Henry Pye-Smith, University of London; Mr. Alfred Harry Young, M.B., Victoria University of Manchester; Dr. Robert Saundby, University of Birmingham; Dr. Richard Caton, University of Liverpool; Dr. Alfred George Barrs, University of Leeds; and Dr. William Tusting Cocking, University of Sheffield. Sir John Batty Tuke, M.P., chosen by the Royal College of Physicians of Edinburgh; Dr. James William Beeman Hodsdon, Royal College of Surgeons of Edinburgh; Dr. John Lindsay Steven, Faculty of Physicians and Surgeons of Glasgow; Sir Thomas Richard Fraser, M.D., University of Edinburgh; Sir Thomas McCall Anderson, University of Glasgow; Dr. David White Finlay, University of Aberdeen; and Dr. John Yule Mackay, University of St. Andrews. Sir John William Moore chosen by the Royal College of Physicians of Ireland; Sir Thomas Myles, Royal College of Surgeons in Ireland; Dr. Francis George Adye-Curran, Apothecaries' Hall of Ireland; Sir Charles Ball, University of Dublin; and Sir Christopher John Nixon, Bart., Royal University of Ireland. Nominated by His Majesty, with the advice of his Privy Council: Mr. Charles Sissmore Tomes, Mr. William Henry Power, C.B., Sir John Williams, Bart., K.C.V.O., Dr. David Caldwell McVail, and Dr. James Little. Elected as Direct Representatives: Mr. George Brown, Sir Victor Alexander Haden Horsley, Mr. George Jackson, Dr. William Bruce, and Dr. Leonard Kidd. Treasurers of the General Council: Dr. Philip Henry Pye-Smith and Mr. Charles Sissmore Tomes.

REGULATIONS
OF THE
MEDICAL EXAMINING BODIES IN THE UNITED KINGDOM.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine, *B.M. and D.M.*, and two degrees in Surgery, *B.Ch. and M.Ch.*

Graduates in Arts (B.A. or M.A.) are alone eligible for these degrees. The most convenient course for the B.A. degree for intending graduates in Medicine is to take Responsions, the Preliminary Science Examinations mentioned below, and the Final Honour School of Physiology. In order to obtain the degrees of B.M. and B.Ch. the following examinations must be passed:—1. Preliminary subjects: Mechanics and Physics, Chemistry, Animal Morphology, and Botany. 2. Professional. (*a*) First Examination: Subjects—Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School; Human Physiology, unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy and Materia Medica with Pharmacy. (*b*) Second Examination: Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene. The approximate dates of the examinations are as follows:—Preliminaries—Mechanics, Physics, and Chemistry, December and June; Animal Morphology, December and March; Botany, March and June; Professional (First and Second B.M.), June and December.

The First Examination for the degrees of B.M. and B.Ch. may be passed as soon as the Preliminary Scientific Examinations have been completed. The subjects of this examination may be presented separately or in any combination or in any order, provided Anatomy and Physiology be passed together.

The Second Examination may be passed after the completion of the first but Pathology and Hygiene may be taken before or with the remaining subjects. Before admission to the Second Examination candidates must present Certificates of attendance or a course of laboratory instruction in Practical Pathology and Bacteriology and of having acted as post-mortem clerk for three months, surgical dresser for six months, and clinical clerk for six months. Also he must produce certificates of instruction in Infectious and Mental Diseases, and of attendance on Labours, and of proficiency in the practice of Vaccination. Also in respect of the First Examination candidates must present certificates showing that they have dissected the whole body once and have attended courses of laboratory instruction in Practical Histology and Practical Physiology.

The degree of D.M. is granted to Bachelors of Medicine of the University provided they have entered their thirty-ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B.M. whose subject is dealt with. A book published within two years of the candidate's application for the degree may be substituted for a dissertation. The Regius Professor may direct the dissertation to be read in public. The degree of M.Ch. is granted to Bachelors of Surgery of the University who have entered their twenty-seventh term, who are members of the surgical staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed the M.Ch. examination in Surgery, Surgical Anatomy, and Surgical Operations. This examination is held annually, in June, at the end of the Second B.M. Examination.

Scholarships, &c.—Scholarships in some branch of Natural Science (Chemistry, Physics, Biology) of the average value of £80 per annum, tenable for four years and renewable under certain conditions for a fifth year, as well as Exhibitions of a less annual value, are awarded after competitive in October, 1904. Bachelors of Medicine of this University who graduated in or before May, 1904, may obtain the B.S. degree by passing the Surgical part of the M.B., B.S. examination. Every candidate must produce certificates of having passed the intermediate examination and of having subsequently attended courses of instruction in (1) Principles and Practice of Medicine; (2) Clinical Methods and Physical Diagnosis; (3) Insanity; (4) Therapeutics; (5) Vaccination; (6) Principles and Practice of Surgery; (7) Operative Surgery, Surgical Anatomy, Practical Surgery, and the Administration of Anæsthetics; (8) Diseases of the Eye, Ear, and Throat: (9) Midwifery and Diseases of Women; (10) Practical Midwifery, the conduct of at least 20 Labours, and practice as a Clinical clerk in Gynæcological work; (11) Pathology and Bacteriology; (12) work of the Post-mortem room; (13) Forensic Medicine; and (14) Hygiene. He must also have attended the Medical and Surgical practice of a recognised hospital for two years and a fever hospital for two months. For internal students the above form the subjects of the fourth and fifth years of study as prescribed by the University. Candidates as external students in medicine must have been engaged in professional study during five years subsequent to matriculation and four years subsequent to passing the Preliminary Scientific Examination Part I. at one or more of the schools recognised by the University for the purpose. Candidates will be examined in Medicine (including Therapeutics and Mental Diseases), Pathology, Forensic Medicine and Hygiene, Surgery, Midwifery, and Diseases of Women. The subjects may be divided into two groups—namely: (1) Medicine, Pathology, Forensic Medicine, and Hygiene; and (2) Surgery, Midwifery, and Diseases of Women. These groups may be taken either separately or together. The fee is £10 for each entry to the whole examination and £5 for examination or re-examination in either group. There will be no separate examination held for Honours but the list of candidates who have passed will be published in two parts—namely, an Honours list and a Pass list.

Doctor of Medicine.—The examination for this degree takes place twice in each year, commencing on the first Monday in December and on the first Monday in July. Candidates must have taken the degrees of M.B., B.S. not less than two years previously but for those who have taken the M.B., B.S. degrees with Honours or have done certain original work this period of delay may be reduced to one year. They may present themselves for examination in one of the following branches, namely: (1) Medicine; (2) Pathology; (3) Mental Diseases; (4) Midwifery and Diseases of Women; (5) State Medicine; and (6) Tropical Medicine. Certain conditions have to be fulfilled in each case, varying according to the nature of the branch in question. Any candidate for the degree of M.D. may transmit to the Registrar, not less than two months before the commencement of the examination, a thesis or published work having definite relation to the branch of Medicine in which he is a candidate, and if the thesis be approved by the examiners the candidate may be exempted from the written examination. The fee is £20.

Master in Surgery.—The examination for the degree of Master in Surgery takes place twice in each year and commences on the first Monday in December and on the first Monday in July. Candidates must produce certificates of having taken the degrees of M.B. and B.S. not less than two years previously and of having subsequently held for at least six months a resident or non-resident Surgical hospital appointment. The examination is conducted by means of printed papers and *vivâ-voce* interrogation, and the subjects are Surgery, Surgical Pathology and Anatomy, a Clinical examination, and operations on the dead body. Any candidate for the degree of M.S. may transmit to the Registrar, not later than two months before the commencement of the examination, a thesis or published work having definite relation to Surgery, and if the thesis be approved by the examiners the candidate may be exempted from the written examination in Surgery. The fee is £20.

UNIVERSITY OF DURHAM.

One Diploma and six degrees are conferred—viz., the Diploma in Public Health and the degrees of Bachelor in Medicine, Bachelor in Surgery, Master in Surgery, Doctor in Medicine, Bachelor in Hygiene, and Doctor in Hygiene. These degrees are open both to Men and Women.

For the degree of *Bachelor in Medicine* (*M.B.*) there are four professional examinations. The subjects of the First Examination are—Elementary Anatomy and Elementary Biology, Chemistry, and Physics. The subjects of the Second Examination are—Anatomy, Physiology, Materia Medica, Therapeutics, Pharmacology, Pharmacy. The subjects for the Third Examination are—Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology. The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery, Midwifery and Diseases of Women and Children.

N.B.—It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine, Newcastle-upon-Tyne. Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board.

For the degree of *Bachelor in Surgery* (*B.S.*) every candidate must have passed the examination for the degree of Bachelor in Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Regional Anatomy. Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances.

For the degree of *Master in Surgery* (*M.S.*) candidates must not be less than 24 years of age and must satisfy the University as to their knowledge of Greek or German. In case they shall not have passed in one of these subjects at the Preliminary Examination in Arts for the M.B. degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.S. They must also have obtained the degree of Bachelor in Surgery of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor in Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice. The subjects of examination are:—Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations, Clinical Surgery.

For the degree of *Doctor in Medicine* (*M.D.*) candidates must be not less than 24 years of age and must satisfy the University as to their knowledge of Greek or German. In case they shall not have passed in one of these subjects at the Preliminary Examination in Arts for the M.B. degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.D. They must also have obtained the degree of Bachelor in Medicine of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor in Medicine in attendance on the practice of a recognised hospital, or in the military or naval services, or in medical and surgical practice. Each candidate must present an essay prepared entirely by himself, which must be typewritten, based on original research or observation, on some medical subject selected by himself, and approved of by the Professor of Medicine and must pass an examination thereon, and must be prepared to answer questions on the other subjects of his curriculum so far as they are related to the subject of the essay.

Doctor of Medicine (*M.D.*) (without residence).—The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence. Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners. They shall produce certificates of moral character from three registered members of the medical profession, and if they have not passed an examination in Arts previously to the Professional Examination in virtue of which they have been placed on the Register, they shall be required to pass in Classics and Mathematics. Candidates who have passed an examination in Arts previously to being placed on the Register are required to pass an examination in Latin. They will be examined in the Principles and Practice of Medicine, including Psychological Medicine, Hygiene, and Therapeutics, the Principles and Practice of Surgery, Midwifery.

registrar of the district, or a certified copy of the baptismal register, or a declaration of the candidate's age, made before a magistrate by his parent or guardian, or by the candidate if of full age, will be accepted. As candidates cannot be admitted after the list is closed any candidate who may not have received a form of entry within a week after applying for it should communicate immediately with the Principal, stating the exact date of his application and the place where it was posted. Every candidate must pay a fee of £2. If he withdraws his name before the last day of entry it shall be returned to him. If he fails to present himself he shall be allowed to enter for a subsequent Matriculation within eight months on payment of £1. If he retires after the commencement of the examination or fails to pass it the full fee of £2 shall be payable on every re-entry. Candidates must show a competent knowledge of each of the following five subjects, according to the details specified: 1. English—Composition, Précis-writing, salient facts in English History and Geography. 2. Elementary Mathematics—Arithmetic, Algebra (including quadratic equations and graphs of simple functions), and the subjects of Euclid (Books I. to IV.). 3. Latin, or Elementary Mechanics, or Elementary Physics (Heat, Light, and Sound), or Elementary Chemistry, or Elementary Botany. 4 and 5. Two of the following subjects, neither of which has been taken under Section 3 (if Latin be not taken one of the other subjects must be another language from the list): Latin, Greek, French, German, Ancient History, Modern History, Logic, Physical and General Geography, Geometrical and Mechanical Drawing, Mathematics (more advanced), Elementary Mechanics, Elementary Chemistry, Elementary Physics (Heat, Light, and Sound), Elementary Physics (Electricity and Magnetism), and Botany. Additional subjects, of which, however, candidates must give notice two months previous to the examination, are: Arabic, Sanskrit, Spanish, Portuguese, Italian, Hebrew, and Zoology. A pass certificate signed by the Principal is delivered to each successful candidate after the report of the examiners shall have been approved by the Senate. Students of the University may be either internal or external. Internal students are those who have matriculated at the University and are studying in a school or schools or under one or more of the teachers of the University. The medical schools in question are those connected with University College Hospital, King's College Hospital, St. Bartholomew's Hospital, the London Hospital, Guy's Hospital, St. Thomas's Hospital, St. George's Hospital, the Middlesex Hospital, St. Mary's Hospital, Charing Cross Hospital, Westminster Hospital, and the London (Royal Free Hospital) School of Medicine for Women. The London School of Tropical Medicine and the Lister Institute of Preventive Medicine are also recognised as schools of the University in special departments. For external students see under M.B., B.S. Examination.

Provincial Examinations for Matriculation.—These examinations are appointed by the Senate from time to time upon the application of any city, institution, or college desiring to be named as a local centre for one or more examinations and are carried on simultaneously with the examinations in London under the supervision of sub-examiners also appointed by the Senate. Candidates wishing to be examined at any provincial centre must give notice upon their forms of entry to the Principal of the University, who will then make all necessary arrangements. Besides the University fee, a fee usually varying from £1 to £3 is charged by the local authorities and must be paid at the local centre immediately before the commencement of the several examinations.

Preliminary Scientific Examination.—The Preliminary Scientific Examination, Part I. (Inorganic Chemistry, Physics, and Biology) will take place twice in each year, commencing on the third Monday in January and on the second Monday in July. It must be passed by internal students not less than one academic year after matriculation and by external students not less than nine months after matriculation. Every candidate must apply (internal students to the academic registrar and external students to the external registrar) for a Form of Entry on or before May 24th or Dec. 5th, which must be returned, accompanied by the proper fee, not later than June 1st for the July examination or Dec. 12th for the January examination. The fee is £5 for each entry to the whole examination, provided that all the subjects are taken at one time. When less than the whole examination is taken at one time it is £2 for each subject. The examination will include papers, practical work, and oral questions on Inorganic Chemistry, Physics, Botany, and Zoology. Candidates must present themselves either (1) in Inorganic Chemistry, Physics, and Biology; or (2) in Inorganic Chemistry and Physics; or (3) in Biology. If they fail in any one subject they may present themselves for re-examination in that subject alone, provided that if they fail in both inorganic chemistry and physics they must present themselves for re-examination in these two subjects taken together. Part II. of the Preliminary Scientific Examination will take place twice in each year, commencing on the Thursdays following the third Monday in January and the second Monday in July. No candidate will be admitted to this examination within six months of having passed Part I. Every candidate must apply (internal students to the academic registrar and external students to the external registrar) for a form of entry on or before May 24th or Dec. 5th, which must be returned not later than June 1st for the July examination or Dec. 12th for the January examination. No fee will be charged for a first entry, but £2 will be charged for each subsequent entry. The examination will include a paper, practical work, and oral questions in Organic Chemistry.

Bachelor of Medicine and Surgery.—Every external candidate for the degree of Bachelor of Medicine and Surgery will be required—1. To have passed the Matriculation examination in this University not less than five years previously. 2. To have passed the Preliminary Scientific examination Part I. (Inorganic Chemistry, Physics, and Biology) not less than nine months after Matriculation, and the Preliminary Scientific examination Part II. (Organic Chemistry) not less than six months after Part I. 3. To have been engaged in his professional studies during five years subsequently to Matriculation and four years subsequently to passing Part I. of the Preliminary Scientific examination at one or more of the medical institutions or schools recognised by this University, one year at least of the four being spent in one or more of the recognised institutions or schools in the United Kingdom. 4. To pass two examinations in Medicine. In order to be admitted to the Bachelor's degrees internal students are required—1. To have attended prescribed courses of study in one or more schools of the University for five years after registration as internal students. 2. To have passed Part I. of the Preliminary Scientific Examination not less than one year after Matriculation, and Part II. of the same examination not less than six months after Part I. 3. To have passed two examinations in Medicine.

Intermediate Examination.—The Intermediate examination in Medicine takes place twice in each year, commencing on the third Monday in January and on the first Monday in July. The subjects of the examination are Anatomy, Physiology and Histology, and Pharmacology, including Materia Medica. No candidate shall be admitted to this examination unless he have passed Part I. of the Preliminary Scientific examination at least two years previously and Part II. at least one year previously. Internal students must have completed the second and third years' course of study prescribed for them by the University and external students must produce certificates of having subsequently to having passed Part I. of the Preliminary Scientific examination been a student during two years at one or more of the medical institutions or schools recognised by this University and of having attended (1) a course of not less than 100 lectures on Anatomy; (2) a course of Dissections for not less than 12 months; (3) a course of not less than 60 lectures on Physiology; (4) courses of Experimental Physiology, Histology, and Physiological Chemistry for not less than three months each; (5) lectures and demonstrations on Pharmacology, Pharmacy, and Materia Medica for not less than three months; and (6) Practical Pharmacy for not less than two months. These certificates (as is the case also with all the certificates hereinafter mentioned) must be transmitted to the Registrar at least four weeks before the commencement of the examination. Fee for this examination £10.

M.B., B.S. Examination.—The M.B., B.S. examination takes place twice in each year, commencing on the last Monday in October and on the first Monday in May. No candidate will be admitted to this examination within two academic years from the date of passing the Intermediate examination. The M.B., B.S. examination under the regulations now described was held for the first time addition he will be required to pass a general examination in Principles and Practice of Medicine. It will be in the power of the Board of Examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations.

A thesis may be presented in any of the following departments of study: (*a*) Anatomy, including Comparative Anatomy, (*b*) Physiology, (*c*) Human or Comparative Pathology, (*d*) Bacteriology, (*e*) Pharmacology, (*f*) Therapeutics, (*g*) Medicine, (*h*) Mental Diseases, (*i*) Preventive Medicine or Public Health, (*j*) Toxicology, (*k*) Legal Medicine, (*l*) Midwifery.

Candidates for the degree of Ch.M. are required to comply with the following regulations:—At the end of one year from the date of having passed the final M.B., Ch.B. Examination candidates will be eligible to present themselves for the higher degree of Master of Surgery. Candidates for this degree will be required to comply with the following regulations: 1. Every candidate shall present a thesis, embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below; in addition the candidates will be required to pass a general examination in Principles and Practice of Surgery and to perform operations on the cadaver. 2. It will be in the power of the board of examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations. 3. The candidate may be examined in that department of the medical curriculum from which the subject of his thesis is chosen and the examiners may require to see the notes of original observations on which the thesis is based, (*a*) Surgery, (*b*) Pathology, (*c*) Bacteriology, (*d*) Gynæcology, (*e*) Ophthalmology.

Degree in Public Health.—For the regulations for this degree and for the diploma in the same subject see p. 616.

Fees.—Matriculation, £2; First Examination, £2; Second Examination, £2; Third Examination, £2; Fourth Examination, £2; Final Examination, £2; Admission Fee to degrees of M.B., Ch.B., £6: M.D. or Ch.M., £2; Admission Fee to degree of M.D. or Ch.M., £8.

UNIVERSITY OF LIVERPOOL.

The student must pass either (1) the University Matriculation Examination, or (2) the Final Examination for Graduation in Arts of any university in Great Britain and Ireland, or (3) the Matriculation Examination of the University of London, or (4) the Higher Certificate Examination of Oxford and Cambridge Joint Board, or (5) the Senior Local Examination of Oxford or Cambridge, with honours, or (6) some other examination of equal standard accepted by the Joint Matriculation Board. The course of professional study, subsequent to passing the Matriculation Examination and having been registered as a medical student, extends over five years. The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery must have attained the age of 21 years on the day of graduation. At least two of the five years of medical study must have been passed in the university, and one year at least must have been passed in the university subsequently to the date of passing the First Examination. The other three years may be passed at any college or medical school recognised for this purpose by the university. Candidates must pass three examinations entitled respectively: the First Examination, the Second Examination, and the Final Examination. The fee is £5 for each examination. The subjects of the First Examination are: (1) Chemistry, Inorganic and Organic; (2) Biology (Zoology and Botany); and (3) Physics The examination is divided into two parts—namely (1) chemistry and physics, and (2) biology; and candidates may pass in these parts separately. The subjects of the Second Examination are (*a*) Anatomy and Physiology (including Physiological Chemistry and Histology), and (*b*) Materia Medica and Pharmacy. Candidates may pass in *a* or *b* separately. The subjects for the Final Examination are (1) Pharmacology and Therapeutics; (2) General Pathology and Morbid Anatomy; (3) Forensic Medicine and Toxicology, and Public Health; (4) Obstetrics and Diseases of Women; (5) Surgery, Systematic, Clinical, and Practical; and (6) Medicine, Systematic, and Clinical, including Mental Diseases and Diseases of Children. Candidates may either present themselves in all the six subjects of examination on the same occasion, or may pass the examination in two parts, the first part consisting of two or three of subjects (1), (2), and (3); the second part of the remaining subjects. Candidates for the first part of the examination must have completed the fourth winter of medical study in accordance with the regulations of the university.

Degrees of Doctor of Medicine and Master of Surgery.—No candidate will be admitted to the degrees of Doctor of Medicine or Master of Surgery unless he has previously received the Degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examinations for those degrees. Candidates for the degree of Doctor of Medicine are required to furnish three copies, preferably printed or typewritten, of the dissertation or published work which they desire to submit to the university. The subjects of examination for the degree of Master of Surgery are (1) Surgical Anatomy, (2) Surgery, (3) Operative Surgery, (4) Clinical Surgery, (5) Ophthalmology, and (6) Pathology and Bacteriology.

UNIVERSITY OF LEEDS.

Candidates presenting themselves for Matriculation in the Faculty of Medicine must pass an examination in English (Language or Literature) and English History, Mathematics and Latin, and in two of eight optional subjects. Exemption from the matriculation examination is granted to graduates of any university of the United Kingdom provided Latin has formed part of one of the degree examinations.

Four degrees in Medicine and Surgery are conferred—viz.: Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), also Degrees and Diplomas in Dental Surgery.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery are required to present certificates showing that they will have attained the age of 21 years on the day of graduation, and that they have attended courses of instruction approved by the University extending over not less than five years, two of such years, at least, having been passed in the University subsequently to the date of passing the First Examination. Candidates must also satisfy the examiners in the several subjects of the following examinations entitled respectively: the Matriculation Examination, or such other examination as may have been recognised by the Joint Matriculation Board in its stead; the First Examination; the Second Examination; and the Final Examination.

The First Examination.—The First Examination consists of: Part I., Physics and Chemistry: Part II., Biology. Candidates will be allowed to pass the two parts separately.

The Second Examination.—The Second Examination consists of Part I., Anatomy and Physiology; Part II., Materia Medica and Pharmacy Candidates will be allowed to pass the two parts separately.

The Final Examination.—The subjects of the Final Examination are: (1) Pharmacology and Therapeutics; (2) Pathology and Bacteriology; (3) Forensic Medicine and Toxicology and Public Health; (4) Obstetrics and Gynæcology; (5) Surgery: Systematic, Clinical and Practical; and (6) Medicine: Systematic and Clinical, including Mental Diseases and Diseases of Children.

Candidates may either present themselves in all the six subjects of examination on the same occasion or may pass the examination in two parts, the first part consisting of two or three of the subjects (1), (2), and (3); the second part consisting of the remaining subjects. Candidates who fail to satisfy the examiners in the first part must either present themselves again in the subjects as selected, or in all the three subjects of the first part, or in all the six subjects of examination.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates for the degree of Doctor of Medicine are required to present a dissertation and, if the dissertation be accepted, to pass an examination. The dissertation, of which the subject must previously have received the approval of the Board of the Faculty of Medicine, must embody the results of personal observation or original research, either in some department of medicine or of some science directly related to medicine, provided and Diseases of Women and Children, *Pathology* (Medical and Surgical), Anatomy (Medical and Surgical), Medical Jurisprudence, and Toxicology. The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners.

Candidates for any of the above degrees must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-upon-Tyne. In the case of the M.D. (essay) examination candidates must send in their essays six weeks before the date of the examination.

THE VICTORIA UNIVERSITY OF MANCHESTER.

Matriculation, which consists in signing the University Register, must precede entry upon any course of study. Those only can matriculate who are registered students of the University.

Four degrees in Medicine and Surgery are conferred by the University—viz., Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

All candidates for degrees in Medicine and Surgery are required to pass an examination called the Matriculation Examination (Faculty of Medicine), or to have passed such other examination as may be recognised by the University for this purpose.[1]

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Before admission to the degree of M.B. or Ch.B. candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation and that they have pursued the courses of study required by the University Regulations during a period of not less than five years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in the University and one year at least having been passed in the University subsequently to the date of passing the First M.B. Examination. All candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery are required to satisfy the examiners in the several subjects of the following examinations: the First Examination, the Second Examination, the Third Examination, and the Final Examination.

The First Examination.—The subjects of examination are as follows:—(1) Chemistry; (2) Physics; (3) Biology; (4) Materia Medica. Candidates must have attended during at least one year courses both of lectures and of laboratory work in each of the above-named subjects. The Examination is divided into three parts: Part 1, Physics and Chemistry; Part 2, Biology; Part 3, Materia Medica; and the candidates may pass in these parts separately under certain conditions.

The Second Examination.—The subjects of examination are as follows:—(1) Anatomy; (2) Physiology, including Physiological Chemistry and Histology. Candidates may pass in (1) and (2) separately under certain conditions.

The Third Examination.—(1) Pathology; (2) Pharmacology and Therapeutics; (3) Hygiene. These subjects may be taken separately under certain conditions.

The Final Examination—The subjects of examination are as follows:—(1) Medicine, Systematic and Clinical (including Mental Diseases and Diseases of Children); (2) Surgery, Systematic, Clinical, and Practical; (3) Midwifery and Gynæcology (including Practical Gynæcology); (4) Forensic Medicine (including Toxicology). These subjects may be taken separately under certain conditions.

Candidates for the Final Examination must have completed the fifth year of medical study.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates for the degree of Doctor of Medicine are required to present a printed dissertation embodying the results of personal observations or original research, either in some department of medicine or of some science directly relative to medicine. No candidate will be admitted to the degree unless his dissertation shall have been recommended by the Faculty of Medicine to the Council for acceptance. Candidates may be examined on any subject connected with their dissertations.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. The subjects of examination are as follows: (1) Surgical Anatomy; (2) Surgery; (3) Operative Surgery; (4) Clinical Surgery; (5) Ophthalmology; and (6) Pathology and Bacteriology.

Communications should be addressed to the Registrar, The University, Manchester.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M.B., Ch.B., M.D., Ch.M., and also a degree and a diploma in Public Health. The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council. As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Chemistry, Physics, and Elementary Biology. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other school or schools of medicine recognised by the University.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—The student must have passed either the Matriculation Examination of the University or one of the following examinations. For the present the University will recognise any one of the following examinations, in lieu of its own Matriculation, in the case of medical students, provided always that such examination shall have included the subjects of English, Latin, Mathematics, and any one of the following: Greek, French, German, or any other modern foreign language, together with Chemistry or Experimental Mechanics, or some other branch of Experimental Physics, and that all the subjects have been passed at one examination: (*a*) the previous examination of the University of Cambridge; (*b*) responsions of the University of Oxford; (*c*) the Preliminary or Matriculation Examination of any recognised University; (*d*) the (Higher) Certificate of the Oxford and Cambridge Examinations Board; (*e*) the Oxford or Cambridge Junior Local Examinations; with First or Second Class Honours, or with Distinctions in two subjects, which may be either languages or mathematics; (*f*) the Oxford or Cambridge Senior Local Examination; (*g*) the College of Preceptors' Examination for First Class Certificate. A Matriculation Examination will be held on Sept. 24th, 1906, and succeeding days. First Examination.—Chemistry and Physics and Elementary Biology. Second Examination.—Anatomy and Physiology. Third Examination.—Pathology and Bacteriology, Materia Medica and Practical Pharmacy. Fourth Examination (at the end of the fourth year).—Forensic Medicine, Toxicology, and Public Health. Two years' hospital work must have been accomplished. Final Examination.—Medicine, Surgery, Midwifery, Gynæcology, Therapeutics, Mental Diseases, and Ophthalmology. Attendance at a general hospital for a year after the passing of the fourth examination will be required, also attendance at a fever hospital and lunatic asylum. Vaccination instruction must be taken out and courses of Ophthalmology, Medical and Surgical Anatomy and Operative Surgery.

Degrees of Doctor of Medicine and Master of Surgery.—At the end of one year from the date of having passed the final M.B., Ch.B. examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both.

Candidates for either of these degrees will be required to comply with the following regulations. Every candidate for the degree of M.D. shall present a thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below, and in

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[1] The following examinations are accepted in lieu of this:—1. The Board will grant exemption from the Matriculation Examination to graduates of any university of the United Kingdom, provided Latin has formed part of one of the degree examinations. 2. For particulars of the conditions under which holders of Certificates from the Universities of Oxford and Cambridge are entitled to exemption, the Calendar of the Joint Matriculation Board should be consulted. 3. Provided that the Certificate shows that all the subjects required by the General Medical Council have been included, the Board is prepared to receive applications for exemption from persons who hold Certificates of having passed the London Matriculation Examination. The fee for registering external Certificates when exemption is granted is £1.

25 meetings on Practical Pharmacy in a university or recognised school of medicine, or have dispensed drugs for a period of three months in a hospital or dispensary, or in an establishment recognised by the Pharmaceutical Society. The candidate must have attended for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or of a physician or surgeon, or of a member of the London or Dublin Society of Apothecaries. He must have acted as clerk in the medical wards and dresser in the surgical wards of a public hospital for a period of six months in each case; and must also have availed himself, to such an extent as may be required by the Senatus, with the approval of the University Court, of opportunities of studying at a hospital or dispensary, Post-mortem Examinations, Fevers, Diseases of the Eye, Operative Surgery, and one of the three following, viz.—Diseases of Children; Diseases of the Larynx, Ear, and Nose; and Diseases of the Skin, or such other special departments as may from time to time be determined. The candidate must have attended, under the superintendence of a registered medical practitioner, 12 cases of labour, or such additional number as the Senatus, with the sanction of the University Court, may from time to time determine; or have attended for three months the practice of a lying-in hospital, or of the maternity department of a general hospital or other public charitable institution and have conducted personally six or such an additional number of cases of labour as the Senatus, with the approval of the University Court, may from time to time determine. The candidate must have been properly instructed in Vaccination at a public vaccination station, by a public vaccinator, authorised by the proper Government authority to grant certificates of proficiency in vaccination.

With respect to the places and institutions at which the studies of the candidate may be prosecuted, the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study, 16 in number—viz., Anatomy, Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than eight must be taken in the University of Edinburgh or in some other university of the United Kingdom, or in some Foreign or Colonial university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court, or in a college incorporated with, or affiliated to, a university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court.

Women are admitted to graduation in medicine under practically the same conditions as men, excepting that, until provision is made in the University for instruction of women in all subjects of the medical curriculum, the regulations as to places of study contained in the foregoing paragraph do not apply to them. The Medical College for Women, 30, Chambers-street, Edinburgh, has been recognised as a medical school whose courses of instruction qualify for graduation.

Each candidate is examined, both in writing and orally, and clinically where the nature of the subject admits:—First, in Chemistry, Zoology, Botany, and Physics; second, in Anatomy, Physiology, Materia Medica, and Therapeutics; third, in Pathology; and fourth, in Surgery, Medicine, Midwifery, Forensic Medicine, and Public Health, and clinically in Medicine and Surgery in a hospital. The examinations are conducted, as far as possible, by demonstrations of objects placed before the candidates. Candidates who profess themselves ready to submit to an examination in the first division of these subjects may be admitted to examination therein at the first period of examination after they have completed their attendance on the necessary classes. Candidates who have passed their examination in the first division of these subjects may be admitted to examination in the second division at the end of their third winter session. Candidates who have passed their examinations in the subjects comprised in the first and second divisions may be admitted to examination in the third division at the end of the fourth winter session. Candidates who have passed their examinations in the subjects comprised in the first, second, and third divisions may be admitted to examination in the fourth or final division when they have completed the fifth year of study.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2*s.*, and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz.: For the First Division of the Examination (Botany, Zoology, Physics, and Chemistry), £6 6*s.*; for the Second Division (Anatomy, Physiology, and Materia Medica and Therapeutics), £6 6*s.*; for the Third Division (Pathology), £2 2*s.*; and for the Final Division (Surgery and Clinical Surgery, Medicine and Clinical Medicine, Midwifery, and Forensic Medicine and Public Health), £8 8*s.* Bachelors of Medicine and Bachelors of Surgery may proceed to the degrees of Doctor of Medicine and Master of Surgery after they have spent one year in the medical or surgical wards respectively of a hospital, or the Military or Naval Medical Services, or in scientific work bearing directly on their profession, or two years in practice. In each case an examination must be passed and a thesis submitted for approval of the Faculty. The fee to be paid for the degree of M.D. is £10 10*s.*, and the fee to be paid for the degree of Ch.M. is £10 10*s.*

UNIVERSITY OF GLASGOW.

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations. Within certain limits instruction given by recognised medical schools and teachers may be accepted, but eight of the subjects other than clinical must be taken in this or some other recognised university entitled to confer the degree of M.D., and at least two years of the course must be taken in Glasgow University. Under the new regulations six degrees, open both to men and women, are conferred: M.B. and Ch.B. (always conjointly), M.D. and Ch.M.; B.Sc. in Public Health; and D.Sc. in Public Health. A Preliminary Examination must be passed in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, with possible options to students whose native language is not English in the case of the fourth subject. Candidates taking the University preliminary examination are not obliged to pass in all the four subjects at one examination but must do so at not more than two occasions.

For the degrees of M.B. and Ch.B. a curriculum of five years is required, in each of the first four of which the student must attend at least two five months' courses, or alternately one five months' course and two courses of two and a half months. The minimum of attendance in the first four years includes five months' courses in the following subjects:—Anatomy, Practical Anatomy (two courses), Chemistry, Materia Medica and Therapeutics, Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women and Infants, and Pathology; and courses of two and a half months in the following: Practical Chemistry, Physics, Botany, Zoology, Practical Physiology, Practical Pathology, Medical Jurisprudence, and Public Health. Candidates must attend at least three years the Medical and Surgical Practice of a recognised hospital accommodating at least 80 patients and having a distinct staff of physicians and surgeons. At least nine months' hospital attendance is required on both Clinical Surgery and Clinical Medicine, and the student must have acted as clerk in medical and dresser in surgical wards, and must have had six months' out-door practice; he must also have attended a course of Mental Diseases and of Practical Pharmacy (25 meetings), must have been properly instructed in Vaccination at a public vaccination station, and must have attended at least 12 cases of labour, or three months of the Practice of a Lying-in Hospital, six cases being personally conducted The University also requires further study in Post-Mortem Examinations, Fevers, and Ophthalmology, and recommends study in other special subjects. If a candidate has completed in a University of the United Kingdom a course of study and passed an examination in Botany, Zoology, Physics, or Chemistry, qualifying for a degree in Science or in Arts, he is held to have passed the examinations in such subject or subjects.

always that original work published in scientific journals or in the Proceedings of learned societies, or separately, shall be admissible in lieu of, or in addition to, a dissertation specially written for the degree. Candidates will be required to write a short extempore essay on some topic connected with medicine and to answer questions on the history of medicine. They will also be examined orally on the dissertation or other work submitted. Any candidate may be exempted from a part or the whole of the examination if the Board of the Faculty so decide. No candidate will be admitted to the degree unless his application, after report from the Board of the Faculty of Medicine, shall have been accepted by the Senate.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Every candidate is also required to furnish certificates of attendance in accordance with the regulations of the University. The subjects of examination are as follows: Surgical Anatomy, Surgery, Operative Surgery, Clinical Surgery, Ophthalmology, Pathology, and Bacteriology.

UNIVERSITY OF SHEFFIELD.

Candidates for a medical degree shall have matriculated in the University or have passed such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board. The subjects required by the General Medical Council must be included in the Matriculation Examination.

The Degrees in the Faculty of Medicine shall be Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—A candidate for the degrees of M.B., Ch.B., shall produce certificates that he will have attained the age of 21 years on the day of graduation; that he has pursued the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his registration as a medical student by the General Medical Council, three of such years at least having been passed in the University and one year at least having been passed in the University subsequently to the date of passing the First Examination.

The First Examination.—The subjects of examination are chemistry, physics, and biology. The examination is divided into two parts, A (chemistry and physics) and B (biology), and candidates may pass in each part separately. The Intermediate B.Sc. Examination in these subjects will, on payment of the required additional fee, be accepted instead of this examination. Candidates must, after matriculation and registration as a medical student, have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology, for one year each.

The Second Examination.—The subjects of examination are anatomy, physiology, materia medica, and pharmacy. The examination is divided into two parts, A (anatomy and physiology) and B (materia medica and pharmacy), and candidates may pass in either part separately. Candidates must have completed the third winter session of professional study, must have passed the first examination, and must have attended (1) lectures on anatomy and dissections during two winter sessions and one summer session; (2) lectures on physiology during two winter sessions, practical physiology during two winter sessions, and histology during one summer session; and (3) materia medica and pharmacy for three months.

The Third or Final Examination.—The subjects of examination are divided into two parts—namely, A (forensic medicine and toxicology, public health, and pathology and morbid anatomy) and B (medicine, including pharmacology and therapeutics, mental diseases, and diseases of children, surgery, obstetrics, and gynæcology). Candidates may present themselves for examination in both parts on the same occasion or separately, but Part A may not be passed before the completion of the fourth year of study. Candidates for the whole examination or for Part B must have completed the fifth year of study.

Degree of Doctor of Medicine.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the professor of medicine, and must pass an examination in the Principles and Practice of Medicine.

Degree of Master of Surgery.—Candidates for the degree of Ch.M. must have passed the examination for the degrees of M.B., Ch.B. at least one year previously and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution, affording full opportunity for the study of Practical Surgery.

The subjects of examination are Systematic, Clinical, and Operative Surgery, Surgical Anatomy, Surgical Pathology, and Bacteriology.

UNIVERSITY OF EDINBURGH.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degree of Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

A diploma in Tropical Medicine and Hygiene (D.T.M. and H.) is granted to graduates in Medicine and Surgery of the University of not less than six months' standing. The course of study includes (1) Practical Bacteriology; (2) Diseases of Tropical Climates; (3) Tropical Hygiene; (4) a Practical Course in Medical Entomology and Protozoology and Venomous Animals; and (5) a Course of Clinical Instruction in Tropical Diseases. Any two of these courses may be taken under Extra-academical Teachers and exemption from the latter course may be granted to those graduates who have been engaged for a period of at least 12 months in the treatment of Tropical Diseases in any tropical or subtropical country. The examinations for the diploma, which will embrace all the foregoing subjects, are held in January and July of each year.

A special University certificate in Diseases of Tropical Climates is also granted to qualified medical practitioners and others specially interested, after approved attendance on the courses of instruction in Tropical Diseases and Practical Bacteriology, including the Micro-organisms of Tropical Diseases.

Before commencing his medical studies each student must pass a preliminary examination in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek or French or German: Provided always that, in the case of a candidate whose native language is not English, an examination in the native language of the candidate may be substituted for one in either French or German, and an examination in any other classical language for one in Latin or Greek.

No one is admitted to the degrees of *Bachelor of Medicine and Bachelor of Surgery* who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended Clinical Surgery during a course or courses extending over not less than nine months. These courses may be conducted by the professor of clinical surgery, or by professors or lecturers appointed for the purpose by the University Court, or by the ordinary surgeons of the Royal Infirmary, Edinburgh, or of a general hospital defined and recognised as hereinbefore provided, and shall consist of regular instruction at the bedside, along with clinical lectures. A similar course of clinical medicine during a course or courses extending over not less than nine months is required. The candidate must have attended a course of instruction in Mental Diseases given by the University Lecturer, or by a recognised Teacher, consisting of not less than six Class-room meetings for lectures and demonstrations and ten meetings in the Wards of a recognised Asylum for the insane. The candidate must have attended a course of

Medica; third, in Pathology, and Forensic Medicine and Public Health; and fourth, in Surgery and Clinical Surgery, Practice of Medicine and Clinical Medicine, and Midwifery.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 10 guineas, exclusive of any stamp duty which for the time may be demanded. The fee to be paid for the degree of Master of Surgery shall be 10 guineas.

The whole medical curriculum can be taken in University College or the first two years in United College.

Bursaries, United College, St. Andrews.—Fourteen Taylour Thomson Bursaries for female Medical students of the annual value of from £20 to £30 each, tenable for one or two years. The Bursaries are awarded in the order of merit, the most valuable ones being given to those students who obtain the highest marks in the Preliminary Examination and who are prepared to take two Anni Medici at the United College, St. Andrews.

University College, Dundee.—(*a*) Open to either sex. Eleven Entrance Bursaries of £15, tenable for one year. (*b*) Open to either sex: Four £20 and three £15, second year. (*c*) Four £20 and two £15, third year. (*d*) Bute Bursary, founded in 1893 by the late Most Honourable the Marquis of Bute, K.T. This Bursary consists of the free proceeds of £1000. (*e*) Two Bursaries of the annual value of £25, tenable for three years at either University College, Dundee, or at any Scottish University (local candidates only).

For further particulars apply to the Dean of the Medical Faculty, University College, Dundee, N.B.

UNIVERSITY OF DUBLIN (TRINITY COLLEGE).

Matriculation.—All students in the School of Physic intending to practise Physic must pass a matriculation examination, for which a fee of 5*s*. is payable. No student can be admitted for the winter course after Nov. 25th.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be concurrent with the medical course and the B.A. degree need not be taken before the final medical examinations, but the medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures—Systematic, Practical and Applied Anatomy, Chemistry and Practical Chemistry, Surgery and Operative Surgery, Histology, Botany, Zoology, Physics, Physiology and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Dublin Hospital (one year at a recognised London or Edinburgh hospital before the commencement of the Dublin curriculum may be counted as one year spent in such Dublin hospital); (3) Practical Vaccination, one month's instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Lectures, including not less than 30 cases, six months; (6) Ophthalmic Surgery, three months. Three groups of examinations have to be passed. Preliminary Scientific Examination, including Physics and Chemistry, Botany and Zoology. The Intermediate Medical Part I., including Anatomy and Institutes of Medicine (Practical Histology and Physiology). The Intermediate Medical Part II., including Applied Anatomy and Applied Physiology; and the Final Examination, which is divided into Part I., Materia Medica, Jurisprudence, and Pathology; and Part II., Medicine, Surgery, Midwifery, Gynæcology, Clinical Medicine, Mental Diseases, Clinical Surgery, Operations, and Clinical Ophthalmology. Part I. may be passed in the fourth year and Part II. in the fifth year. Fee for the *Liceat ad Examinandum*, £10. Fee for the degrees, £17.

Doctor in Medicine.—A Doctor in Medicine must have passed all the qualifying examinations and must be a B.A. of three years' standing. He must also read a thesis before the Regius Professor of Physic. Total amount of fees for this degree, £13.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession. He must then pass an examination in the following subjects:—1. Clinical Surgery. 2. Operative Surgery. 3. Surgical Pathology. 4. Surgery. 5. Surgical Anatomy (on the dead subject), and one of the following optional subjects:—1. Surgery in one of the following branches—viz., Ophthalmic and Aural, Gynæcological and Dental. 2. Mental Disease. 3. Medical Jurisprudence and Hygiene. 4. Advanced Anatomy and Physiology. 5. Comparative Anatomy. Fee for the degree of Master in Surgery, £11.

Master in Obstetric Science.—A Master in Obstetric Science must be fully qualified and produce a certificate of having attended a summer course in Obstetric Medicine and Surgery. He is then required to pass an examination in the following subjects:—1. Practice of Midwifery. 2. Gynæcology. 3. Anatomy of Female Pelvis and Elementary Embryology. 4. Clinical Gynæcology. Fee for the degree of Master in Obstetric Science, £5.

University Diplomas.—Candidates for the diplomas in Medicine, Surgery, or Obstetric Science must be matriculated in Medicine and must have completed two years in Arts and five years in Medical Studies. The Course and Examination necessary for the diplomas are the same as for the degrees, except that the candidate is not required to attend the Lectures on Botany and Zoology, nor to pass the Previous Medical examination in those subjects. A diplomate, on completing his course in Arts and proceeding to the degree of B.A., may become a Bachelor by attending the Lectures on Botany and Zoology, passing the Previous Medical examination in those subjects, and paying the degree fees. Fee for the *Liceat ad Examinandum*, £10. Fee for the diplomas in Medicine, Surgery, and Midwifery, £11.

ROYAL UNIVERSITY OF IRELAND.

All Degrees, Honours, Exhibitions, Prizes, Scholarships, and Studentships in this University are open to students of either sex.

Candidates for any degree in this University must have passed the Matriculation Examination. Students from other universities and colleges are included in this rule.

The following degrees, &c., are conferred by the University in this Faculty:—Bachelor of Medicine, Doctor of Medicine, Bachelor of Surgery, Master of Surgery, Bachelor of Obstetrics and Master of Obstetrics; in Sanitary Science, a special diploma; and in Mental Disease, a special diploma.

The course for degrees in Medicine, &c., is of at least five years' duration.

The First Examination in Medicine.—Students may be admitted to this examination after the lapse of one academical year from the time of their matriculation. They must also have previously passed the First University Examination and completed the first year of the medical curriculum. The subjects of this examination are Natural Philosophy, Systematic Chemistry, Zoology and Botany. The examination in each subject will comprise three parts:—(1) a written examination; (2) an oral examination; and (3) a practical examination. Particular weight will be given to the practical part of the examination. Candidates at the First Examination in Medicine who at the First University Examination did not obtain 30 per cent. of the marks assigned to French or German will be required to present themselves for a qualifying examination in French or German. Failure to obtain 30 per cent. of the marks assigned to either of those languages will involve the loss of the examination.

The Second Examination in Medicine.—Students will be admitted to this examination after the lapse of one medical year from the time of passing the First Examination in Medicine, provided they have completed the second year of the medical curriculum. The subjects for this examination are Anatomy, Physiology, and Practical Chemistry.

The Third Examination in Medicine.—Students will be admitted to this examination after the lapse of one medical year from the time of passing the Second Examination in Medicine, provided they have completed the third year of the medical curriculum. The subjects for this

There are four Professional Examinations, the first comprising Botany, Zoology, Physics, and Chemistry, to be taken after the completion of the included courses (candidates being at liberty to take two subjects at a time); the second comprising Anatomy, Physiology, and Materia Medica and Therapeutics, to be taken at the end of the third winter session; the third comprising Pathology, Medical Jurisprudence, and Public Health, to be taken at the end of the fourth winter session; and the fourth or final, comprising Surgery, Clinical Surgery, Practice of Medicine, Clinical Medicine, and Midwifery, to be taken on completion of the fifth year of study.

The degrees of M.D. (Doctor of Medicine) and Ch.M. (Master of Surgery) are higher degrees in Medicine and Surgery respectively, and candidates (not under 24 years of age) who have previously obtained the double bachelorship may be admitted to either M.D. or Ch.M. on completing the after course prescribed, including an examination in Clinical Medicine for M.D. and an examination in Surgical Anatomy, operations on the dead body, and Clinical Surgery for Ch.M.

Fees.—The Fees for M.B. and Ch.B. are £23 2*s.* The class fee in each subject of the curriculum for M.B. and Ch.B. is £2 2*s.*, £3 3*s.*, or £4 4*s.*, and the present fees for hospital attendance are £10 10*s.* The fee for M.D. is £10 10*s.* (stamp duty being now abolished), and for Ch.M. £10 10*s.*

During last academic year there were 657 men and 63 women attending University courses in the Faculty of Medicine—a total of 720. The great majority of the students take their hospital course at the Western Infirmary, where clinical instruction is given by professors of the University and other physicians and surgeons. Clinical instruction on Fevers is given at Ruchil and Belvidere Hospitals, while special courses, largely of a practical nature and embracing work in Hospital or Asylum wards, are conducted by University Lecturers on the Ear, the Throat and Nose, and Insanity. Queen Margaret College, hitherto conducted as a separate institution for the higher education of women, has now been made over to the University and in it medical classes for women are conducted under University professors and other lecturers appointed by the University Court, whilst for clinical instruction female students are admitted to the Royal Infirmary. Since 1894, the year in which the University first conferred degrees on women, 126 women have graduated in Medicine.

Bursaries and Prizes to the annual amount of over £1000 are appropriated to medical students, and Scholarships and Fellowships to the annual amount of about £1600 may be held by medical students who have gone through the Arts course.

UNIVERSITY OF ABERDEEN.

The curricula for the several degrees conferred are nearly the same as in the Universities of Edinburgh and Glasgow.

Professional Examinations are held twice in each year—namely, in March and July, directly after the close of the winter and summer sessions.

The fees for graduation are the same as in the University of Edinburgh. Matriculation fee, including all dues, for the winter and summer sessions, £1 1*s.*; summer session alone, 10*s.* 6*d.*

Besides the Royal Infirmary, students have the opportunity of attending the following institutions: City Fever Hospital, Sick Children's Hospital, General Dispensary, and Lying-in and Vaccine Institutions (daily), Royal Lunatic Asylum, Ophthalmic Institution, &c.

A diploma in Public Health is granted by the University to graduates in Medicine of a University in the United Kingdom, after a special examination. The diploma can be entered on the Register of the General Medical Council.

Application for further information should be addressed to the Secretary of the Medical Faculty.

UNIVERSITY OF ST. ANDREWS (UNITED COLLEGE, ST. ANDREWS AND UNIVERSITY COLLEGE, DUNDEE).

The following are extracts from the Regulations for Degrees in Medicine contained in Ordinance No. 45 (St. Andrews, No. 4) of the Commissioners under the Universities (Scotland) Act, 1889. These regulations came into force on April 19th, 1897. Four degrees in Medicine and Surgery shall be conferred by the University of St. Andrews—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degrees of M.B. and Ch.B. shall always be conjoined. Before commencing his medical studies each student shall pass a *Preliminary Examination* in (*a*) English, (*b*) Latin, (*c*) Elementary Mathematics, and (*d*) one of the following optional subjects:—(α) Greek, (β) French, (γ) German, (δ) Italian, (ε) any other Modern Language, (ζ) Logic. A degree in Arts or in Science in any of the Universities of the United Kingdom and in some colonial or foreign universities shall exempt from the Preliminary Examination. The Preliminary Examination for graduation in Medicine and Surgery, Arts or Science, of the University of St. Andrews is accepted as equivalent to the Registration Examination required by the General Medical Council (the certificate to include the required subjects). Also the Final Examination for a degree in Arts or Science and the Final Examination for the Diploma of L.L.A.

Degree of Bachelor of Medicine and Bachelor of Surgery.—Candidates must have been engaged in medical study for at least five years. In each of the first four years the candidate must have attended at least two courses of instruction in one or more of the subjects of study specified below, each course extending over a session of not less than five months, either continuous or divided into two terms, or, alternatively, one such course along with two courses, each extending over a session of not less than two and a half months. During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries, British or foreign, as may be recognised for the purpose by the University Court. The candidate must have received instruction in each of the following subjects of study, including such examinations as may be prescribed in the various classes—viz.: Anatomy, Practical Anatomy, Chemistry, Materia Medica, Physiology, or Institutes of Medicine, Practice of Medicine, Surgery, Midwifery and the Diseases peculiar to Women and Infants, Pathology, Practical Chemistry, Physics (including the Dynamics of Solids, Liquids, and Gases, and the Rudiments of Sound, Heat, Light, and Electricity), Elementary Botany, Elementary Zoology, Practical Physiology, Practical Pathology, Forensic Medicine, and Public Health. The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court. *Additional subjects* of study are Practical Pharmacy, Mental Diseases, Practical Midwifery (12 cases of labour), Vaccination, Children's Diseases, Fevers, Ophthalmology, and *Post-mortem Examinations.*

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court.

Women shall be admitted to graduation in Medicine, subject to the provisions of Ordinance No. 18 [General No. 9—Regulations for the Graduation of Women and for their Instruction in the Universities]: Provided always that every candidate for graduation shall produce evidence of having satisfied the conditions herein laid down with respect to the Preliminary Examination, and shall be examined in all the subjects necessary for graduation by the Examiners of the University of St. Andrews. All the classes necessary for graduation shall be taken in the University of St. Andrews, except in so far as instruction obtained elsewhere is allowed by the said Ordinance.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate shall be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., first, in Botany, Zoology, Physics, and Chemistry; second, in Anatomy, Physiology, and Materia written, partly oral, and partly practical. These examinations will be held in the months of January, April, July, and October, unless otherwise appointed. Every candidate intending to present himself for examination is required to give notice in writing to Mr. F. G. Hallett, secretary of the Examining Board, Examination Hall, Victoria Embankment, W.C., 14 clear days before the day on which the examination commences, transmitting at the same time the required certificates.

The subjects of the First Examination are—Chemistry, Physics, Elementary Biology, and Practical Pharmacy. A candidate may take this examination in three parts at different times (Chemistry and Physics must be passed together). A candidate will be admitted to examination in Chemistry and Physics, in Practical Pharmacy, and Elementary Biology on producing evidence of having passed the required Preliminary Examination and of having received instruction in these subjects at a recognised institution, *or he may take Pharmacy* at any time during the curriculum. (*Note:* In the case of students who commence their professional studies after June 1st, 1904, certificates must be produced of 180 hours' instruction and laboratory work in chemistry; 120 hours' instruction and laboratory work in physics; and 120 hours' instruction and laboratory work in biology. These courses need not be completed within one year, nor need they run concurrently, and they may be commenced or attended before the candidate passes the required preliminary examination in general education.) Synopses of the subjects of examination may be obtained on application. A candidate rejected in one part or more of the First Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected. If referred in Chemistry, Physics, or Biology he must produce evidence of further instruction at a recognised Institution. Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of this examination conducted at a *university* in the United Kingdom, in India, or in a British colony will be exempt from examination in those subjects in which he has passed.

The fees for admission to the First Examination are as follows: For the whole examination, £10 10*s.*; *for* re-examination after rejection in Parts I. and II., £3 3*s.*; and for re-examination in each of the other parts, £2 2*s.*

The subjects of the Second Examination are Anatomy and Physiology. Candidates will be required to pass in both subjects at one and the same time. Candidates will be admissible to the Second Examination at the expiration of two winter sessions and one summer session (or 15 months during the ordinary sessions) from the date of passing Parts I., II., and III. of the First Examination on production of the required certificates of professional study. The study of Anatomy and Physiology before passing the First Professional Examination is not recognised.

A candidate referred on the Second Examination will be required, before being admitted to re-examination, to produce a certificate that he has pursued, to the satisfaction of his teachers, in a recognised place of study, his Anatomical and *Physiological* studies during a period of not less than three months subsequently to the date of his reference.

The fees for admission to the Second Examination are: *£10 10s.* for the whole examination and £6 6*s.* for re-examination after rejection.

The subjects of the Third or Final Examination are: Part I. Medicine, including Medical Anatomy, Pathology, Practical Pharmacy, Therapeutics, Forensic Medicine, and Public Health. Candidates who have passed in Practical Pharmacy at the First Examination will not be re-examined in that subject at the Third Examination. Part II. Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances. Part III. Midwifery and Diseases Peculiar to Women. Candidates may present themselves for examination in Midwifery and Diseases of Women at any time after the completion of the fourth year of professional study at a Medical School and Hospital, not less than one year after passing the Second Examination, on production of the required certificates. Candidates may present themselves for examination in Medicine and Surgery at the completion of the five years' curriculum, not less than two years from the date of passing the Second Examination, on production of the required certificates. Candidates may take this examination in three parts at different times, or they may present themselves for the whole examination at one time. They will be required to produce the following evidence before being admitted to the several parts of the Third or Final Examination—viz., in Medicine, of having attended Lectures on Medicine, Pathology including Bacteriology, Pharmacology, and Therapeutics, Forensic Medicine, and Public Health; Practical Instruction in Medicine; Medical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Medicine during nine months; of having discharged the duties of Medical Clinical Clerk; Instruction in the Administration of Anæsthetics; Practice of a Fever Hospital and Clinical Demonstrations at a recognised Lunatic Asylum; in Surgery, of having attended Lectures on Surgery and Pathology including Bacteriology; Practical Instruction in Surgery; of having performed operations upon the Dead Subject; Surgical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Surgery during nine months; of having discharged the duties of Surgical Dresser; Instruction in the Administration of Anæsthetics; and Clinical Instruction in Ophthalmology; in Midwifery of having attended Lectures on Midwifery; Practical Instruction in Midwifery; Clinical or other Lectures, with Practical Instruction in Diseases Peculiar to Women; and of attendance on 20 Labours.

The fees for admission *to* the *Third or Final* Examination are as follows: For the whole examination, £21. Part I. For re-examination in Medicine, including Medical Anatomy, Pathology, Therapeutics, Forensic Medicine, and Public Health, £5 5*s.*; for re-examination in Practical Pharmacy (if taken at this examination), £2 2*s.* Part II. For re-examination in Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances, £5 5*s.* Part III. For re-examination in Midwifery and Diseases Peculiar to Women, £3 3*s.*

A candidate referred on the Third or Final Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required, before being admitted to re-examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice, or the Medical or Surgical Practice, as the case may be, during the period of his reference; and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received, subsequently to the date of his reference, not less than three months' instruction in that subject by a recognised teacher.

Students of recognised universities in England, Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First and Second Examinations of the Examining Board, may enter for the Final Examination at the expiration of two years from the date of passing in Anatomy and Physiology, on production of the required certificates.

Graduates in Medicine of certain recognised Indian, Colonial, and Foreign universities may present themselves for the Final examination under special conditions which can be ascertained on application to the Secretary.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or Glasgow, or in Edinburgh and Glasgow, the student may obtain the diplomas of the three Bodies.

The three Bodies grant their Single Licences only to candidates who already possess legal qualifications in Medicine or Surgery. *Copies of the Regulations for the Single* Licence of any of the Bodies may be had on application to the respective secretaries.

REGULATIONS FOR CANDIDATES WHO COMMENCED STUDY *before* JAN. 1ST, 1892.

Professional Education.—1. The candidate must produce certificates or other satisfactory evidence of having attended the following separate and distinct courses of examination will be Anatomy, Physiology, and Materia Medica (Pharmacology and Therapeutics).

The Examination for the Medical Degrees.—Students will be admitted to this examination after the lapse of not less than one medical year from the time of passing the Third Examination in Medicine, provided they have completed the course of medical studies prescribed for the entire medical curriculum. The examination consists of three parts or divisions:—(*a*) Medicine, including Therapeutics and Pathology, Mental Diseases, Medical Jurisprudence and Sanitary Science. (*b*) Surgery, Theoretical, Clinical, Operative; Surgical Anatomy, with Ophthalmology and Otology; Surgical Pathology. (*c*) Midwifery and Diseases of Women and Children. Each part of this examination must be passed as a whole. Upon completing satisfactorily his examination in all three divisions the candidate will, in addition to the parchment diplomas recording his admission to the Medical Degrees of M.B., B.Ch., and B.A.O., receive a certificate of having passed a qualifying examination in the subjects of Medicine, Surgery, and Midwifery. The fee for this certificate is £10, which must be paid prior to the candidate's admission to these Degrees.

The M.D. Degree.—Candidates may present themselves for the examination for this degree after the lapse of three academical years from the time of obtaining the degrees of M.B., B.Ch., B.A.O. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval medical service. Every candidate will be examined at the bedside, and required to diagnose at least three medical cases, and prescribe treatment, and to write detailed reports on at least two cases to be selected by the examiners and to discuss the questions arising thereon.

The M. Ch. Degree.—This degree will be conferred only on graduates in Medicine of the University of at least three years' standing. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval medical service. The examination for this degree will comprise Surgical Diseases and Surgery, both theoretical and operative; Surgical Anatomy; Ophthalmology and Otology; Surgical Pathology; and will include—(*a*) a written examination; (*b*) a clinical examination; (*c*) an examination on Surgical Instruments and Appliances; and (*d*) an examination in Operative Surgery.

The M.A.O. Degree.—This degree will be conferred only on graduates in Medicine of the University of at least three years' standing. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval medical service. The examination will comprise the Theory and Practice of Midwifery and of Diseases of Women and Children, Pathology, and the Use of Instruments and Appliances and will include—(*a*) a written examination; (*b*) a clinical examination as far as practicable; and (*c*) an oral examination, with practical illustrations.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Membership.—Every candidate for the Membership of the College must furnish proof of having attained the age of 25 years. Candidates must not be engaged in trade, dispense medicine, make any engagement with a chemist, or any other person for the supply of medicine, or practise medicine or surgery in partnership, by deed or otherwise. Any candidate being already registered or having passed a qualifying examination in accordance with the Medical Act of 1886, who has obtained the degree of Doctor or Bachelor of Medicine at a University in the United Kingdom, in India, or a British colony, or who has obtained a foreign qualification entitling him to practise medicine or surgery in the country where such qualification has been conferred, wherein the courses of study and the examinations to be undergone previously to graduation have been adjudged by the Censors' Board to be satisfactory, will (if the Censors think fit) be admitted to the Pass Examination. The nature and extent of this examination will, in the case of each candidate, be determined by the Censors' Board. All other candidates must produce proof of having passed the examinations required for the Licence of the College. The fee for admission as a Member of the College is 40 guineas, except when the candidate for Membership is a Licentiate of the College, in which case the fee is 25 guineas.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Fellowship.—The examination for the Fellowship is divided into two parts—viz., the First Examination and the Second Examination. The subjects of the First Examination are Anatomy and Physiology and the questions on these subjects may require an elementary acquaintance with Comparative Anatomy and Physiology. The examination is partly written and partly *vivâ voce*. The subjects of the Second Examination are Surgery, including Surgical Anatomy and Pathology. The examination is partly written and partly *vivâ voce* and includes the examination of patients and the performance of operations on the dead body. The examinations are held during the months of May and November of each year.

The fees for examination are:—First Examination, each admission, five guineas. Second Examination, each admission, 12 guineas. Of such examination fees 17 guineas will be reckoned as part of the fee payable upon admission to the Fellowship. The fee to be paid upon admission to the Fellowship is 30 guineas, except when the candidate is a Member of the College, in which case the fee is 20 guineas.

A Member of the College is admissible to the First Examination at any time after receiving his Diploma of Membership. A candidate who is not a member of the College is admissible to the first Professional Examination for the Fellowship on the production of evidence of having passed the First and Second Examinations of the Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England (or, if a member of a University, of having passed the Examinations in his University recognised as equivalent to the First and Second Examinations of the Board) and on the production of certificates of attendance upon certain courses of study described in the Regulations. A Colonial, Indian, or Foreign Student, not registered by the General Medical Council, must produce a certificate of having passed such examination or examinations as may, on special application to the Council, be considered as satisfactory.

A Member of the College is admissible to the Second Examination at any time after having passed the First Examination, on producing satisfactory evidence of having been engaged not less than six years in the study (or study and practice) of the profession.

A candidate who is not a Member of the College must possess the registrable surgical and medical degrees recognised by the Council and must have been engaged in the study (or study and practice) of the profession for not less than four years subsequent to the date of obtaining the recognised qualification, one year of which shall have been spent in attendance on the Surgical Practice of a recognised hospital. The diploma of Fellow is not conferred upon successful candidates until they have attained the age of 25 years.

The Regulations may be obtained on application to the Secretary of the Examining Board, Examination Hall, Victoria Embankment, London, W.C.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.[2]

Any candidate who desires to obtain both the Licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth. Six months of the curriculum may be spent in an Institution recognised by the Board for instruction in Chemistry, Physics, Practical Chemistry, and Biology.

Professional Examinations.—There are three Examinations, called herein the First Examination, the Second Examination, and the Third or Final Examination, each being partly

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[2] The diploma of Member of the Royal College of Surgeons of England and the Licence of the Royal College of Physicians of London are no longer granted separately except to students who commenced their professional study prior to Oct. 1st, 1884.

Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface markings, &c. The fees payable for the Final examination shall be,—for the whole examination, £15, for re-entry in all subjects after rejection, £5.

Candidates who enter on the footing of having passed the earlier examination at another Board shall pay the fees in respect of these examinations, as well as the Final examination fees.

There are six periods of examination annually, four in Edinburgh and two in Glasgow, and candidates may present themselves at either examining centre irrespectively of the place of the previous examination. The Registrar in Edinburgh is Mr. J. Robertson, solicitor, 54, George-square; and the Registrar in Glasgow, Mr. A. Duncan, LL.D., 242, St. Vincent-street, to whom fees and certificates must be sent.

Note.—In applying for copies of the Regulations students should state whether they commenced medical study before or after Jan. 1st, 1892.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

The Royal College of Surgeons of Edinburgh admits to the examination for its single Licence any candidate who already holds a Diploma in Medicine of any British, Indian, or Colonial university or of any British or Colonial College of Physicians, or of the Society of Apothecaries of London or Apothecaries' Hall, Dublin, granted under the provisions of the Medical Act, 1886, whose preliminary examination and course of professional study is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above. Female practitioners are now admitted to the Licence of the College but not to the Fellowship, and the regulations for the Licence apply to practitioners of either sex.

Every candidate for a surgical diploma must have followed his course of study in a university, or in an established school of medicine, or in a provincial school specially recognised by the College of Surgeons of that division of the United Kingdom in which it is situate.

Under the title Established School of Medicine are comprehended the medical schools of those cities of Great Britain and Ireland in which Diplomas in Surgery are granted, and such colonial and foreign schools as are similarly circumstanced in the countries in which they exist.

PROFESSIONAL EXAMINATION FOR THE DIPLOMA OF THE COLLEGE.

Candidates for the Diploma of the College will be subjected to one professional examination, partly in writing and partly practically and orally.

Opportunities for the examinations will be presented four times in each year. On each of these occasions the candidates will assemble to write answers to the questions proposed, and the clinical and oral examinations shall be conducted on the days immediately succeeding.

Unsuccessful candidates will be remitted to their studies for a period to be determined by the judgment of the examiners, but not in any case for less than three months.

The examination will embrace the principles and practice of surgery (including operative surgery and surgical pathology), clinical surgery, and surgical anatomy, and will not take place before the termination of the full period of study.

Applications for examination must be made to Mr. James Robertson, solicitor, 54, George-square, Edinburgh, clerk to the College, not later than one week prior to the date of examination.

On the production of the required document Mr. Robertson will give the candidate an order authorising the examiners to admit him to examination.

The fee of £15 15*s.* payable to the College must be lodged in the hands of Mr. Robertson not later than one week preceding the examination day. The sum of £10 10*s.* will be returned to each unsuccessful candidate. Under special circumstances candidates can be examined on days other than those fixed by the regulations. The fee for a special examination is as follows, viz., £20 for examination, of which £10 will be returned to candidates remitted on examination.

In order to test more effectually the practical knowledge of candidates recent dissections and anatomical specimens will be employed during examination. They will also be subjected to a practical clinical examination in the Surgical Hospital, including the application of surgical apparatus, bandages, surface markings, &c., and may, if it be considered necessary to test their knowledge, be required to perform operations on the dead body.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

The Royal College of Physicians of Edinburgh grants its single Licence on terms similar to those of the Royal College of Surgeons of Edinburgh, as above mentioned.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The College issues its Licences in Medicine and in Midwifery to practitioners whose names appear on the Medical Register of the United Kingdom.

The Licence in Medicine.—The subjects of examination are: Practice of Medicine, Clinical Medicine, Pathology, Medical Jurisprudence, Midwifery, Hygiene, and Therapeutics.

The Licence in Midwifery.—Candidates must produce certificates of registration. A registered medical practitioner of five years' standing is exempted from the examination by printed questions.

Fees.—Fee for the Licence to practise Medicine, £15 15*s.* Fee for examination for the Licences in Medicine and Midwifery, if obtained within the interval of a month, £16 16*s.* —to be lodged in one sum. Any candidate who has been rejected at the examination for the Licence in Medicine loses this privilege and will be required to pay the full fee of five guineas for the Licence in Midwifery. Fee for special examination for the Licence to practise Medicine, £21. Fee for examination for the Licence to practise Midwifery, £5 5*s.* Fee for special examination for the Licence to practise Midwifery, £10 10*s.* The examinations for these Licences are held in the week following the first Friday in February, May, and November.

The Membership.—Examinations for Membership are held in January, April, July, and October. The fee for the examination is £21 to Licentiates of the College, or £36 15*s.* to non-Licentiates. Further particulars can be obtained from the Registrar of the Royal College of Physicians of Ireland, Kildare-street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Licence in Surgery.—Candidates who hold registrable surgical diplomas (including the Licence of the Apothecaries Companies of London and Dublin granted since October, 1886) are admitted to examination without further evidence of study. Candidates who hold medical qualifications only (including the L.S.A. granted before October, 1886) will be required to produce certificates of two courses of lectures in Anatomy and Dissections, one course of Practical Histology, one course of lectures in Surgery, and one course of Operative Surgery. Candidates are examined in Surgery, Clinical Surgery, Operative Surgery on the subject, Surgical Appliances, and Ophthalmic Surgery. The examination is partly written, partly *vivâ voce*, and partly practical. The fee is £26 5*s.*, of which £5 5*s.* is retained by the College in the case of unsuccessful candidates.

Diploma in Midwifery.—A diploma in Midwifery is granted after examination to persons possessing a registrable qualification. Candidates must produce evidence of (*a*) attendance on a course of lectures on Midwifery and Diseases of Women and Children in some school recognised by the Council; (*b*) attendance on six months' practice in connexion with a recognised lying-in hospital or dispensary for lying-in women and children, and (*c*) of having conducted at least 20 labour cases. The fee for the examination is £15 15*s.*, of which £5 5*s.* is retained by the College in case the candidate is unsuccessful.

Fellowship Examinations.—A candidate for the Fellowship shall make application to the President and Council to be admitted to examination and if the Council decide to entertain that application it shall lie on the table for at least a fortnight for consideration before it is put to the Council for approval. All the required evidences of study or qualification, fees, and testimonials as to character must be submitted previously to the application being considered, and the candidate shall then, if approved by the Council, be admitted to the next Sessional examination or to a special examination if granted by the Council, at such date as the

Instruction: Anatomy, during at least six months; Practical Anatomy, twelve months; Chemistry, six months; Practical or Analytical Chemistry, three months; Materia Medica, three months; Physiology, six months; Practice of Medicine, six months; Clinical Medicine, nine months; Principles and Practice of Surgery, six months; Clinical Surgery, nine months; Midwifery and the Diseases of Women and Children, three months; Medical Jurisprudence, three months; Pathological Anatomy, three months. The number of lectures certified as attended at any school not situated in Scotland should not be less than three-fourths of the total number of lectures delivered in a course. 2. The candidate must also produce the following certificates:—(*a*) Of having attended not less than six cases of labour, three of these to be conducted personally under the direct superintendence of the practitioner who signs the certificate, who must be a registered medical practitioner. (*b*) Of having attended, for three months, instruction in Practical Pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy. (*c*) Of having attended for 24 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for clinical instruction and possessing distinct staffs of physicians and of surgeons. (*d*) Of having attended for six months (or three months, with three months' hospital clerkship) the practice of a public dispensary specially recognised by any of the above authorities, or the out-patient practice of a recognised general hospital or of having acted for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the coöperating authorities; this attendance should be made after the student has passed the First and Second examinations. (*e*) Of having been instructed in the Theory and Practice of Vaccination by a Public Vaccinator authorised to grant certificates of proficiency in vaccination and of having performed operations under the teacher's inspection during a period of not less than six weeks.

Candidates shall be subjected to three Professional examinations, and they may enter either for the whole of an examination or for a division thereof.

First Examination.—The First examination shall embrace the two divisions of (1) Chemistry and (2) Elementary Anatomy and Histology and shall take place not sooner than the end of the first year, including the period of a winter and a summer session. For the whole examination taken at one time the sum of £5 5*s.* must be paid to the inspector of certificates not later than one week preceding it, after which no candidate will be entered. After rejection, for re-entry in all subjects, £3 3*s.*; for re-entry after obtaining exemption from re-examination in one or two subjects, £2 2*s.*; for entering for one division of subjects separately, £3 3*s.*; and for each re-entry after rejection, £2 2*s.* Any candidate who shall produce satisfactory evidence of having passed an equivalent examination in any of the subjects of the First examination before any of the boards specified in the Regulations will be exempt from examination in such subjects.

Second Examination.—The Second examination shall embrace the three subjects of (1) Anatomy, (2) Physiology, (3) Materia Medica and Pharmacy, each of which shall constitute a division of the examination and may be entered for separately. The examination shall not take place before the termination of the summer session of the second year of study, including two winters and two summers. The fees for admission to this examination, payable not later than one week before the day of examination, are as follows:—For the whole examination, £5 5*s.*; after rejection for re-entry in all subjects, £3 3*s.*; for re-entry after obtaining exemption from re-examination in one or two subjects, £2 2*s.*; for entering for one subject separately, £2 2*s.*; and for each re-entry therein after rejection, £2 2*s.* Any candidate who shall produce satisfactory evidence of having passed an equivalent examination in any of the subjects of the Second examination before any of the boards specified in the Regulations will be exempt from examination in such subject or subjects.

Final Examination.—The Final examination shall embrace the three divisions of—(1) the Principles and Practice of Medicine (including Therapeutics, Medical Anatomy, and Pathology) and Clinical Medicine; (2) the Principles and Practice of Surgery (including Surgical Anatomy and Surgical Pathology) and Clinical Surgery; (3) Midwifery and Gynæcology, Medical Jurisprudence, and Hygiene (which divisions may be entered for separately at different times); and shall not take place before the termination of the full period of study. The fees for this examination, payable not later than one week before the examination day, are as follows: For the whole examination, taken at one time, in the case of candidates who have passed the First and Second examinations of the board, £15 15*s.*, of which £10 10*s.* shall be returned to unsuccessful candidates. For entering for each of the three divisions of subjects separately, £6 6*s.*, and on re-entry after rejection, £2 2*s.* in respect of each division or part thereof. This rule will also apply to any subsequent rejection. Any candidate admitted to the Final examination, on the footing of having passed in the subjects of the First and Second examinations at a recognised board, shall, on entering, pay the full fee of £26 5*s.*

All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical Use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface Markings, &c.

REGULATIONS FOR CANDIDATES WHO COMMENCED STUDY *after* JANUARY 1ST, 1892.

In addition to the courses above prescribed candidates are required to attend the following courses: Physics, three months; Elementary Biology, three months; Diseases and Injuries of the Eye, three months; Insanity, three months; Infectious Diseases, three months; and a third year of Hospital Practice with Clinical Instruction (which may include the study of special diseases). A certificate of vaccination from a teacher authorised by the Local Government Board is also required.

The curriculum lasts for five years; the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries. Six months of the fifth year may be passed by the student as a pupil to a registered practitioner possessing such opportunities of imparting practical knowledge as may be deemed satisfactory by the Committee of Management. The student's regularity of attendance in the wards and out-patients departments of the hospitals and at the post-mortem examinations should be duly ascertained and noted on the certificate.

Candidates shall be subjected to four professional examinations:

First Examination.—The First examination shall embrace the following divisions of subjects—(1) Physics, (2) Chemistry, including Practical Chemistry, and (3) Elementary Biology. The fees payable for admission to the First examination shall be for the whole examination, £5; for each division separately, £2 10*s.*

Second Examination.—The Second examination shall embrace Anatomy and Physiology including Histology; and candidates may be admitted to this examination at the end of the second year of medical study. The fees payable for admission to the Second examination shall be—for the whole examination, £5, and for re-entry after rejection, £3 for both subjects, and £2 if one of the subjects has been passed.

Third Examination.—The Third examination shall embrace Pathology and Materia Medica with Pharmacy. The fees payable for admission to the Third examination shall be—for the whole examination, £5; for re-entry in both subjects after rejection, £3; and £2 if one of the subjects has been passed.

Final Examination.—The Final examination shall not be taken earlier than the end of the fifth year of study and shall embrace the following subjects:—Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye; Midwifery and Diseases of Women and of New-born Children; and Medical Jurisprudence and Public Health. All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical use of the Microscope, must be signed by the Dean of the Medical School or other authority. Section I. of the Final examination consists of three parts. Part I. includes the Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation, Instruments, and Appliances. Part II. includes the Principles and Practice of Medicine, Pharmacology, Pathology, and Morbid Histology; Forensic Medicine, Hygiene, Theory and Practice of Vaccination; and Mental Diseases. Part III. includes Midwifery, Gynæcology, and Diseases of New-born Children and the Use of Obstetric Instruments and Appliances. Section I. of the Final examination cannot be passed before the expiration of 45 months after registration as a medical student, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognised by the Society. Section II. of the Final examination consists of two Parts. Part I. Clinical Surgery; Part II. Clinical Medicine and Medical Anatomy. Section II. cannot be passed before the end of the fifth year.

The course of study for the Primary examination is as follows:—Elementary Biology, not less than three months; Chemistry and Chemical Physics, six months; Practical Chemistry, three months; Pharmacy and Dispensing, three months; Anatomy, six months; Practical Anatomy with Demonstrations, 12 months; Physiology, six months; Histology with Demonstrations, three months. The study of these subjects must be pursued at a Medical School recognised by the Society. Instruction in Pharmacy and Dispensing must be given by a registered medical practitioner or by a member of the Pharmaceutical Society by examination or in a public hospital, infirmary, or dispensary.

The course of study for the Final examination, Section I., includes attendance on the Surgical and Medical Practice (with Post-mortem Examinations) at a hospital connected with a medical school for a period of one winter and one summer session; lectures on the Principles and Practice of Surgery, six months; Practical Surgery, three months; Clinical Surgical Lectures, nine months; Dressership, six months; Performance of Surgical Operations on the Dead Body; lectures on Principles and Practice of Medicine, six months; Pathology, three months; Clinical Medical Lectures, nine months; Clinical Clerkship, six months; Forensic Medicine, Hygiene, and Insanity, three months; Midwifery and Gynæcology, three months; Clinical Instruction in the same, three months; a course of Practical Midwifery; attendance on 20 Midwifery cases. The course of medical study must extend over the above-mentioned period of 45 months and the offices of dresser or clinical clerk must be held at a hospital, or other institution recognised by the Society.

The course of study for the Final examination, Section II., includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment, or attendance at two special hospitals for six months (three months at each hospital), and for six months at a general hospital, all such hospitals to be recognised by the Society. Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases), and in any two of the following subjects: Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children. No candidate is eligible for the Final examination who has not completed the curriculum prescribed by the Society, in evidence of which a schedule, to be obtained of the Secretary, must be produced, signed by the Dean of the Medical School or other authority. Prior to Section II. of the Final examination the candidate must produce certificates: (1) of being 21 years of age; (2) of moral character; (3) of the course of medical study; (4) of proficiency in vaccination signed by a teacher authorised by the Local Government Board; and (5) of instruction in the administration of anæsthetics. Candidates intending to present themselves for examination are required to give 14 days' notice. A form for this purpose will be sent on application.

The fee for the Licence is 20 guineas. The examination offices are open from 10 A.M. to 4 P.M.; on Saturdays from 10 A.M. to 1 P.M. All letters should be addressed to the Secretary, Court of Examiners, Society of Apothecaries of London, Blackfriars, E.C.

APOTHECARIES' HALL OF IRELAND.

The Licence of this Hall is granted to students who present certificates of having fully completed the course of study as laid down in the curriculum and who pass the necessary examinations. The diploma of the Apothecaries' Hall of Ireland entitles the holder to be registered as a practitioner in medicine, surgery, and midwifery, with also the privileges of the Apothecary's Licence. There are four professional examinations, the total fees for which amount to 21 guineas. Ladies are eligible for the diploma. Registered medical practitioners will receive the diploma of the Hall upon passing an examination in the subject or subjects not covered by their previous qualifications and on paying a fee of 10 guineas. If medicine or surgery be required five guineas extra will be charged.

The fees payable for each examination are as follows:—first professional, £5 5*s.*; second, £5 5*s.*; third, £5 5*s.*; final examination, £6 6*s.* If a candidate gives three clear days' notice of his inability to attend he may present himself at the ensuing examination without a further fee. A candidate is allowed for each professional examination which he has completed at any other licensing body except the final. If he has passed in some only of the subjects in a given examination he has to pay the whole of the fee for that examination. The fees for re examination are for each subject £1 1*s.*, except in the subjects of chemistry, pharmacy, surgery, medicine, second anatomy, pathology, physiology, and ophthalmology, the fees for which are two guineas each. The fee for the third and final or final alone is £15 15*s.* when the other examinations have been taken elsewhere. All examination fees are to be lodged in the Sackville-street Branch of the Royal Bank of Ireland to the credit of the Examination Committee. Applications and schedules, together with bank receipt for the fee, must be lodged with the Registrar, Apothecaries' Hall, 40, Mary-street, Dublin, at least 14 clear days before the first day of examination.

There are four examinations—first, second, third, and final. The first three are held quarterly on the third Monday in January, April, July, and October; the finals are held in January and July. The first examination comprises osteology (first anatomy), biology, physics, theoretical and practical chemistry (with an examination at the bench). Pharmacy is put down in this examination, but it may be taken at any of the first three examinations. Candidates holding a Pharmaceutical licence are exempt from this subject. The second examination comprises anatomy of the whole body (including practical dissections), materia medica and therapeutics, physiology and practical histology. The third examination comprises pathology, materia medica if not taken at second examination, medical jurisprudence, and hygiene. The final examination comprises medicine, including clinical and oral, surgery, including operations, clinical and oral, ophthalmic surgery, including clinical and oral, midwifery, and gynæcology.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall in Ireland must before proceeding to the final examination produce evidence of having been registered as medical students for 57 months, also of having attended courses of instruction as follows:—one course each (of six months) of the following: anatomy (lectures), chemistry (theoretical), midwifery, practice of medicine, physiology, surgery, and dissections, two courses of six months each. Courses of three months: materia medica, medical jurisprudence, chemistry (practical), practical physiology and histology, operative surgery, physics, clinical ophthalmology, biology, clinical instruction in mental disease, pathology, and a course in vaccination. Medico-chirurgical hospital, 27 months to be distributed, at the student's own discretion, over the last four years of his study. The candidate may substitute for nine months in this hospital attendance, six months as a resident pupil. He will be required to present a certificate of having taken notes of at least six medical and surgical cases recorded under the supervision respectively of a physician and surgeon of his hospital. Three months' study of fever—which may be included in his 27 months' hospital attendance—in a hospital containing fever wards, and having taken notes of five cases of fever—viz., either typhus fever, typhoid fever, scarlet fever, small-pox, or measles. Six months'

President may fix. In order that these regulations may be carried out candidates are required to lodge their applications complete with the Registrar at least one month before the date of examination. Sessional Fellowship examinations commence, as far as arrangements permit, on the third Mondays in February, May, and November. Special examinations may be granted at other times by the Council if they see fit, on sufficient cause being shown, except during the months of August and September. Candidates for the Fellowship examination are divided into two Grades: I., Licentiates or Graduates in Surgery of less than 10 years' standing; II., Licentiates or Graduates in Surgery of more than 10 years' standing. Students not either Licentiates or Graduates in Surgery are permitted to present themselves for the *Primary* examination under Grade I.

Grade I.—Candidates are required to pass two examinations — Primary and Final. Candidates may present themselves for the Final examination immediately after passing the Primary part, provided they have complied with the necessary regulations. The subjects for the Primary examination are (*a*) Anatomy, including Dissections; and (*b*) Physiology and Histology.

The subjects for the Final examination are (*a*) Surgery, including Clinical and Operative Surgery; and (*b*) Surgical Pathology.

Grade II.—The subjects for examination are (*a*) Surgical Anatomy; (*b*) Surgery, including Clinical and Operative Surgery; and (*c*) Surgical Pathology.

Fees.—Grade I.:—For Licentiates of the College: for Primary examination, £15 15*s.*; for Final examination, £10 10*s.* For Licentiates in Surgery of other licensing bodies: for Primary examination, £26 5*s.*; for Final examination, £15 15*s.* For Students of the College: for Primary examination, £5 5*s.*; for Final examination, £21. For Students of other licensing bodies: for Primary examination, £10 10*s.*; for Final examination, £31 10*s.* Grade II.:—Licentiates of the College, £26 5*s.*; Licentiates in Surgery of other licensing bodies, £42; extra fee for Special examination, £10 10*s.*

In case of rejection £10 10*s.*, in addition to the special fee, if such has been paid, is retained by the College and is not allowed in the fees of re-examination.

A rejected candidate will not be again admitted to examination until after a period of three months.

Further particulars can be obtained from the Registrar of the College, Stephen's-green, West Dublin.

ROYAL COLLEGE OF PHYSICIANS AND ROYAL COLLEGE OF SURGEONS, IRELAND.

The following Regulations are obligatory on all students commencing on or after Oct. 1st, 1902:—

PRELIMINARY EXAMINATION AND REGISTRATION.

Every candidate for the Conjoint Examinations of the Colleges shall produce evidence of having before entering on medical studies, passed a Preliminary Examination in general education recognised by the Royal Colleges. Each candidate before receiving his diplomas must produce a registrar's certificate or other satisfactory evidence that he has attained the age of 21 years.

Preliminary Examination.—The subjects for examination are identical with those prescribed for the Preliminary Examination by the General Council of Medical Education and Registration.

Professional Examinations.

Every candidate is required to pass four Professional Examinations—at the end of the first, second, third, and fifth years respectively of his professional studies. No candidate shall be admitted to the Final or Qualifying Examination within three months of his rejection at the Final or Qualifying Examination by any other Licensing body. All examinations shall be conducted as far as possible by demonstration of objects placed before the candidates.

First Professional Examination.—Every candidate is required, before admission to the First Professional Examination, to produce evidence—(1) of having passed in the subjects of the Preliminary Examination; and (2) of having attended a course of—(*a*) lectures on Theoretical Chemistry, winter course; (*b*) Practical Chemistry, three months' summer or winter course; (*c*) Elementary Biology; and (*d*) Physics.

The subjects of the First Professional Examination are the following:—1. (*a*) Chemistry; (*b*) Physics. 2. Biology. The fee for this examination is £15 15*s.*

Second Professional Examination.—Candidates are not admissible to this examination before the end of their second winter session. Every candidate is required, before admission to the Second Professional Examination, to produce evidence of having passed the First Professional Examination, and certificates of having attended—(1) Anatomical Dissections, two courses of six months; (2) Practical Histology, three months; (3) Lectures on (*a*) Anatomy, six months; (*b*) Physiology, six months; (*c*) Practical Physiology and Histology, three months.

The subjects of the Second Professional Examination are the following:—(1) Anatomy; and (2) Physiology and Histology. The fee for this examination is £10 10*s.*

Third Professional Examination.—Candidates are not admitted to this examination before the end of their third winter session. Every candidate is required, before admission to the Third Professional Examination, to produce evidence of having passed the Second Professional Examination and, in addition to the certificates required for the Second Professional Examination, certificates of having attended—(*a*) Pathology; (1) Systematic, (2) Practical, three months each; (*b*) Materia Medica, Pharmacy, and Therapeutics, three months; (*c*) Forensic Medicine and Public Health, three months; (*d*) Surgery, six months. Satisfactory evidence must be produced of attendance in fever wards in connexion with the hospital attendance in either the third or a subsequent year.

The subjects for the Third Professional Examination are the following:—(1) Pathology; (2) Materia Medica, Pharmacy, and Therapeutics; (3) Public Health and Forensic Medicine. The fee for this examination is £9 9*s.*

Final Professional Examination.—Candidates may take one or two sections of this examination at the end of the third year but cannot complete it till the expiry of four years from the passing the First Professional Examination. Every candidate is required before admission to produce evidence (1) of having passed the Third Professional Examination; (2) of having attended—(*a*) at a General Hospital for 27 months; (*b*) Clinical Instruction in Ophthalmic and Aural Surgery for three months; (*c*) a Midwifery Hospital or Maternity, six months; (*d*) Vaccination; and (*e*) Clinical Instruction in Mental Diseases, one month; and (3) Courses of Instruction at a recognised medical school in (*a*) Medicine, six months; (*b*) Surgery, six months; (*c*) Operative Surgery, three months; and (*d*) Midwifery (including Diseases Peculiar to Women and to New-born Children), six months.

The subjects for the Fourth Professional Examination are the following:—(1) Medicine, including Fevers, Mental Diseases, and Diseases of Children; (2) Surgery, including Operative Surgery and Ophthalmic Surgery; (3) Midwifery, including Diseases of Women and New-born Children and Vaccination. Every candidate shall produce evidence of having acted as medical clinical clerk and as surgical dresser. Candidates may present themselves for examination in *all* the subjects of the Final Examination at the *same* time or in certain groups of subjects. The fee for this examination is £6 6*s.* Further particulars can be obtained on application to Alfred Miller, Secretary of the Committee of Management, Royal College of Physicians, Dublin.

SOCIETY OF APOTHECARIES OF LONDON.

There are two examinations—Primary and Final. The Final examination is divided into Section I. and Section II. The Primary examination is held quarterly. Final examinations are held monthly.

The Primary examination consists of two parts. Part I. Elementary Biology; Chemistry, Chemical Physics, including the Elementary Mechanics of Solids and Fluids, Heat, Light, and Electricity; Practical Chemistry; and Materia Medica and Pharmacy. A synopsis indicating the range of the subjects in the examination will be sent with the regulations on application. Evidence of instruction in these subjects must be produced prior to examination. Part II. includes Anatomy, Physiology, and Histology. This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one. Evidence must be produced of the candidate's course of study. A schedule for the Primary examination, to be obtained of the Secretary, Mr. L. B. Rawling, and Mr. G. E. Gask. Operative Surgery: Mr. R. C. Bailey, Mr. W. McAdam Eccles, and Mr. W. D. Harmer. Midwifery and the Diseases of Women and Children: Dr. F. H. Champneys. Practical Midwifery: Dr. H. Williamson. Pathology: Dr. F. W. Andrewes. Bacteriology (advanced): Dr. E. E. Klein. Chemical Pathology: Dr. A. E. Garrod. Morbid Anatomy and Post Mortems: Dr. T. J. Horder, Dr. Langdon Brown, and Mr. G. E. Gask. Practical Pathology: Mr. F. A. Rose, Dr. H. Thursfield, Mr. R. C. Elmslie, and Dr. Neligan. Ophthalmic Medicine and Surgery: Mr. W. H. Jessop. Diseases of the Eye: Mr. W. H. Jessop and Mr. W. Holmes Spicer. Ophthalmic Demonstrations: Mr. W. Holmes Spicer. Diseases of the Ear: Mr. A. E. Cumberbatch. Diseases of the Larynx: Mr. W. D. Harmer. Orthopædic Surgery: Mr. W. MacAdam Eccles. Diseases of the Skin: Dr. J. A. Ormerod. Diseases of Children: Dr. A. E. Garrod and Dr. H. Morley Fletcher. Medical Electricity and Electro-therapeutics: Dr. H. Lewis Jones. Mental Diseases and Insanity: Dr. T. Claye Shaw. Dental Surgery: Mr. W. B. Paterson and Mr. J. Ackery. Anæsthetics: Mr. R. Gill, Mr. W. F. Cross, and Mr. H. E. G. Boyle. Forensic Medicine: Dr. W. P. Herringham. Descriptive and Surgical Anatomy: Mr. H. J. Waring and Mr. W. McAdam Eccles. Practical Anatomy: Mr. C. E. West, Mr. C. G. Watson, Mr. T. J. Faulder, Mr. R. B. Etherington-Smith, and Mr. H. W. Wilson. General Anatomy and Physiology: Dr. J. S. Edkins. Practical Physiology: Dr. J. S. Edkins, Dr. W. Langdon Brown, and Mr. J. J. Paterson. Materia Medica, Pharmacology, and Therapeutics: Dr. James Calvert. Pharmacology: Dr. F. A. Bainbridge. Biology and Comparative Anatomy: Dr. T. W. Shore. Practical Biology: Dr. T. W. Shore, Mr. F. W. W. Griffin, and Mr. T. S. Lukis. Chemistry: Dr. W. H. Hurtley. *Practical* Chemistry: Dr. W. H. Hurtley and Mr. K. S. Caldwell. *Physics*: Mr. F. Womack. Practical Physics: Mr. F. Womack and Mr. *Lloyd Hopwood*. Botany: Rev. G. Henslow. Public Health: Dr. George Newman. Practical Hygiene and Public Health: Dr. J. K. Warry. Museum Curator: Dr. F. W. Andrewes. Junior Curator: Dr. W. P. S. Branson. Dean of the School: Dr. T. W. Shore. Warden of College: Mr. G. E. Gask.

CHARING CROSS HOSPITAL AND COLLEGE.—This hospital and convalescent home contain 300 beds, a certain proportion of which are set aside for the diseases of children and those special to women. Total fees, including students' club:—For general students: 1. Composition fee, payable in one sum on joining, 115 guineas. 2. Sessional payment system: Entrance fee, 10 guineas. In addition a sum of 15 guineas must be paid at the beginning of every Winter Session and one of 10 guineas at the beginning of every Summer Session so long as the student *remains* in the school. For Dental students: The fees for the two years' curriculum required by dental students may be paid: (*a*) in one sum of 55 guineas on entry; (*b*) in two instalments, one of 31 guineas on entry and the second of 30 guineas at the end of the first twelve months. General students pay proportionally lower fees and are admitted without additional fee to the courses of Clinical Medicine and Surgery. They are entitled to compete for the Scholarships, Gold Medal, Huxley, and Pereira Prizes.

Classes for the Preliminary Scientific and *Intermediate* Examinations of the University of London and for the Primary F.R.C.S. are held at this Medical School. There are also special classes for the practical work for the Department of Public Health and for the Primary F.R.C S.

Staff.—Consulting Physicians: Sir J. Fayrer, Bart., M.D., Dr. Green, Dr. Bruce, and Dr. Abercrombie. Consulting Obstetric Physician: Dr. J. Watt Black. Physicians: Dr. Murray, Dr. Mott, and Dr. Galloway. Physician to Out-patients: Dr. Fenton. Assistant Physicians: Dr. Hunter, Dr. Bosanquet, and Dr. Forsyth. Consulting Surgeons: Mr. R. Barwell, Mr. Bloxam, and Mr. Morgan, C.V.O. Surgeons: Mr. Boyd, Mr. Waterhouse, and Mr. Wallis. Surgeon to Out-patients: Mr. Gibbs. Assistant Surgeons: Mr. Clogg and Mr. Daniel. Obstetric Physician: Dr. Amand Routh. Assistant Obstetric Physician: Dr. T. W. Eden. Physician for Diseases of the Skin: Dr. Galloway. Assistant Physician for Diseases of the Skin: Dr. MacLeod. Physician to the Electrical Department: Dr. Ironside Bruce. Surgeon for Nose, Throat, and Ear: Mr. Waggett. Ophthalmic Surgeon: Mr. Treacher Collins. Orthopædic Surgeon: Mr. Fairbank. Surgeon Dentist: Mr. J. F. Colyer. Physician for Mental Diseases: Dr. Mercier.

Lecturers: Winter Session.—Anatomy: Dr. Christopher Addison. Bacteriology: Mr. Leathem. Biology and Comparative Anatomy: Dr. H. W. Marett Tims. Chemistry and Physics: Dr. H. Forster Morley. Dental Surgery: Mr. J. F. Colyer. Medicine: Dr. H. Montague Murray and Dr. F. W. Mott. Ophthalmology: Mr. E. Treacher Collins. *Physiology* and Histology: Mr. C. F. Myers-Ward. Practical Anæsthetics: Mr. C. Carter Braine. Practical Anatomy: Dr. Christopher Addison. Practical Hygiene: Mr. Leathem and Dr. H. Forster Morley. Practical Medicine: Dr. Bosanquet and Dr. Fenton. Practical Midwifery: Dr. T. W. Eden. Practical Physiology: Mr. C. F. Myers-Ward. Practical Surgery: Mr. F. C. Wallis, Mr. H. S. Clogg, *and Mr. Fairbank*. Operative Surgery: Mr. Charles Gibbs. Psychological Medicine: Dr. Mercier. Surgery: Mr. H. F. Waterhouse. Tropical Medicine: Sir Patrick Manson.

Summer Session.—Anatomy: Dr. Christopher Addison. Anæsthetics: Mr. C. Carter Braine. Dental Surgery: Mr. J. F. Colyer. Forensic Medicine: Dr. Fenton. Materia Medica and Practical Pharmacy: Dr. Galloway. Midwifery: Dr. Amand Routh. Pathology: Dr. W. Hunter. Pharmacology and Therapeutics: Dr. Galloway. Anatomy: Dr. Christopher Addison. Practical Chemistry: Dr. H. Forster Morley. Practical Medicine: Dr. Bosanquet and Dr. Fenton. Practical Physiology: Mr. C. F. Myers-Ward. Public Health: Dr. H. T. Bulstrode. Toxicology: Dr. H. Forster Morley. Roentgen Ray: Mr. Mackenzie Davidson.

ST. GEORGE'S HOSPITAL.—This hospital contains 350 beds, of which 205 are allotted to surgical and 145 to medical cases. One ward is set apart for Diseases peculiar to Women. Children's beds are placed in all the women's wards. Two wards are allotted to ophthalmic cases.

The Winter Session commences on Oct. 1st but students can enter at any time or for any particular course. The Hospital and Medical School are situated at Hyde Park-corner and are readily accessible from all parts of London. Entrance Scholarships in Anatomy and Physiology are awarded at the commencement of each Winter Session. Prizes: The William Brown Exhibition of £100 per annum (tenable for two years) is awarded by examination to a perpetual pupil of the hospital *every second year*. The William Brown Exhibition of £40 (tenable for three years) is awarded by examination to a perpetual pupil of the hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the hospital. Students are permitted to enter the wards of the hospital at any hour. Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital. A large number of house office appointments are open without *fee to every* perpetual student of the hospital and are *made* strictly in accordance with the merits of the candidates. Special *attention is directed* to the following paid appointments, amongst others, which are open to students after they have held house office:—Medical Registrarship at £200 per annum; Surgical Registrarship at £200; Curatorship of the Museum at £200; Assistant Curatorship at £100; Obstetric Assistantship (Resident) at £50; Demonstratorship of Anatomy at £50; the post of Senior Anæsthetist at £50; *the* posts (2) of Junior Anæsthetists, each at £30. Great attention is paid by members of the staff to individual teaching. A number of special courses are given in which the requirements of university and *other* examinations receive careful attention. The following may be cited as examples:—(1) Elementary Bacteriology; (2) Advanced Bacteriology; (3) Clinical Pathology; (4) Systematic Pathology; (5) *Histological* Pathology and Morbid Anatomy; (6) Operative Surgery; (7) Public Health; and (8) Tropical Diseases. Special test examinations and *classes are* held by members of the staff for all examinations. The *school* possesses an Amalgamation Club, with well-fitted reading-, smoking-, and luncheon-rooms on the hospital premises. Students have the advantage of a well-filled library of medical and scientific books which is kept *thoroughly* up-to-date. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean. Further information may be obtained from the Dean of the Medical School. Mr. F. Jaffrey, Dean.

Staff.—Consulting Physicians: Sir Henry Pitman, *Dr.* W. H. *Dickinson*, Dr. T. T. Whipham, and Sir Isambard *Owen*. Consulting Surgeons: Mr. Holmes, Mr. Pick, and Mr. Hayward.

practical midwifery and diseases of women during the winter or summer of the third or the fourth year at a recognised lying-in hospital or maternity. Three months' practical pharmacy in a recognised clinical hospital or a recognised school of pharmacy, or a year in the compounding department of a licentiate apothecary or a pharmaceutical chemist. Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years. Each candidate must produce evidence of having before entering on medical studies passed a preliminary examination in general education recognised by the General Medical Council and of having been registered by that Council as a student in medicine. Certificates of medical study will not be recognised if the commencement of the course to which the certificate refers dates more than 15 days prior to such registration, except in the subjects of physics or biology. This registration is not undertaken by the Hall. The details of the course of education required and syllabus of the examinations will be supplied on application to the Registrar at 40, Mary-street, Dublin.

UNIVERSITY OF BRUSSELS.

British and other practitioners holding registrable qualifications are admitted to the examination for the Doctorate of the University of Brussels without further curriculum. It is essentially a *practitioner's* examination and is separate from that intended for the Belgian students who take up the medical curriculum of the University. The fees are—For matriculation, £8 12*s.*; for 1st Part, £4 4*s.*; for 2nd Part, £4 8*s.*; for 3rd Part, £4 8*s.*; for legalisation of diploma, 8*s.*—total, £22. Candidates who have paid in advance the fees for the three examinations, and are unsuccessful in the first, recover the fees paid for the second and third; those who fail in the second recover the fees paid for the third examination. Unsuccessful candidates are allowed to come up again three months after rejection on payment of examination fees only, provided this second appearance be in the course of the same academical year (October 1st to June 30th), otherwise they must renew the payment of the matriculation fee of £8 12*s.* The examination consists of three parts, viz.—1st Part: General Medicine; Materia Medica and Pharmacology; General Surgery; and Theory of Midwifery. 2nd Part: General Therapeutics; Pathology and Morbid Anatomy, with use of the microscope; Special Therapeutics and Medicine of Internal Diseases, including Mental Diseases; and Special Surgery. 3rd Part: Public and Private Hygiene; Medical Jurisprudence; Clinical Medicine; Clinical Surgery; examination in Operative Surgery, consisting of some of the usual operations on the dead subject—viz., Amputation, Ligature of an Artery, &c.; Ophthalmology; examination in Midwifery, consisting in obstetrical operation on the mannikin (model of pelvis); and examination in Regional Anatomy with Dissection. The time required for the three examinations seldom exceeds ten days, and is usually less. Candidates have the option of passing each part separately or of taking the three together, and the latter is the usual course; also of demanding a written examination on payment of an additional fee of one guinea for each part, a rule of which candidates rarely or never avail themselves. The examinations, which are *vivâ voce*, begin on the first Tuesday in November, December, February, May, and June. Candidates should appear with their diplomas at the Secretary's office not later than 2 P.M. on the day preceding the examination. Most of the examiners speak English and those who do not examine through the medium of an interpreter. Great importance is attached to practical knowledge, but candidates must also possess sound theoretical knowledge, the standard required varying with the subject. Pathological and other specimens are not usually shown. There are in England at present over 600 graduates holding this degree, and a British Association of Brussels Medical Graduates has been in existence for many years. Applications should be made to the Secrétariat, 14, Rue des Sols, Bruxelles.

METROPOLITAN MEDICAL SCHOOLS.[1]

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The clinical practice of the hospital is large. The hospital contains 744 beds, of which 674 are for patients in the hospital at Smithfield and 70 for convalescent patients at Swanley.

This hospital receives within its walls more than 7000 in-patients annually and its out-patients and casualties amount to more than 140,000 annually.

Special departments have been organised for diseases of the Eye, Ear, Larynx, and Skin, as well as for Orthopædic and Dental Surgery in which Chief Assistants and Clinical Assistants are appointed annually. Surgical operations take place every day at 1.30 P.M. and Surgical Consultations are held on Thursdays at the same hour. The physicians and surgeons deliver clinical lectures weekly during both the winter and the summer sessions. Clinical Lectures on all special subjects are also given. The visits of the physicians and surgeons are made at 1.30.

Ten house physicians and ten house surgeons are appointed annually. During their first six months of office they act as "junior" house physicians and house surgeons and receive a salary of £25 a year. During their second six months they become "senior" house physicians and house surgeons and are provided with rooms by the hospital authorities and receive £80 a year as salary. A resident midwifery assistant and an ophthalmic house surgeon are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Two assistant anæsthetists are appointed annually, and receive salaries of £120 and £100 respectively, with rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year. The clinical clerks, the obstetric clerks, the clerks to the medical out-patients, the dressers to the surgical in-patients and to the out-patients, and the dressers in the special departments are chosen from the students. All the appointments are now free. A college is attached to the hospital.

The Medical School Buildings include three large lecture theatres, a large dissecting room, a spacious library (containing 13,000 volumes), a well-appointed museum of anatomy, physiology, comparative anatomy, materia medica, botany, and pathological anatomy. The pathological museum is the most complete in the kingdom. There are laboratories for chemistry, physiology, pathology, chemical pathology, pharmacology, physics, public health, and biology, giving ample accommodation in every department.

The recreation ground of 10 acres is at Winchmore-hill for the use of the members of the Students' Union, which all students are expected to join.

Instruction in Preliminary Science is given to University of London students in chemistry, biology, and physics throughout the year.

Laboratory Instruction for the D.P.H. is provided during the winter and summer sessions, and elementary instruction in Bacteriology is also given throughout the year.

Staff.—Consulting Physicians: Sir William S. Church, Bart., K.C.B., Dr. Hensley, Sir Lauder Brunton, F.R.S., Dr. Gee, and Sir Dyce Duckworth. Consulting Surgeons: Sir Thomas Smith, Bart., K.C.V.O., Mr. Willett, Mr. Butlin, Mr. Marsh, and Mr. Langton. Consulting Ophthalmic Surgeon: Mr. Henry Power. Physicians: Dr. Norman Moore, Dr. Samuel West, Dr. Ormerod, Dr. Herringham, and Dr. Tooth, C.M.G. Surgeons: Mr. Harrison Cripps, Mr. Bruce Clarke, Mr. Anthony Bowlby, C.M.G., Mr. Lockwood, and Mr. D'Arcy Power. Assistant Physicians: Dr. Garrod, Dr. Calvert, Dr. Morley Fletcher, Dr. Drysdale, and Dr. Horton-Smith-Hartley. Assistant Surgeons: Mr. Waring, Mr. Eccles, Mr. Bailey, Mr. Harmer, and Mr. Rawling. Physician Accoucheur: Dr. Champneys. Assistant Physician Accoucheur: Dr. W. S. A. Griffith. Surgeon to Obstetric Wards: Mr. Harrison Cripps. Ophthalmic Surgeons: Mr. Jessop and Mr. Holmes Spicer. Aural Surgeon: Mr. Cumberbatch. Dental Surgeons: Mr. Paterson and Mr. Ackery. Assistant Dental Surgeons: Mr. Ackland and Dr. Austen. Medical Officer in charge of Electrical Department: Dr. Lewis Jones. Pathologist: Dr. Andrewes. Administrators of Anæsthetics: Mr. Gill and Mr. Cross. Assistant Administrator of Anæsthetics: Mr. Boyle. Medical Registrars: Dr. Horder and Dr. Langdon Brown. Surgical Registrar: Mr. Gask. Casualty Physicians: Dr. Branson and Dr. Howell.

Lectures and Demonstrations.—Medicine: Dr. Norman Moore and Dr. S. West. Clinical Medicine: Dr. Norman Moore, Dr. S. West, Dr. J. A. Ormerod, Dr. W. P. Herringham, and Dr. H. H. Tooth. Practical Medicine: Dr. J. H. Drysdale, Dr. Horton-Smith-Hartley, and Dr. W. P. S. Bransom. Surgery: Mr. W. Bruce Clarke and Mr. D'Arcy Power. Clinical Surgery: Mr. Harrison Cripps, Mr. W. Bruce Clarke, Mr. Anthony Bowlby, Mr. C. B. Lockwood, and Mr. D'Arcy Power. Practical Surgery: Mr. R. C. Bailey,

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[1] For Scholarships see p. 590 et seq.

Mr. L. B. Rawling, and Mr. G. E. Gask. Operative Surgery: Mr. R. C. Bailey, Mr. W. McAdam Eccles, and Mr. W. D. Harmer. Midwifery and the Diseases of Women and Children: Dr. F. H. Champneys. Practical Midwifery: Dr. H. Williamson. Pathology: Dr. F. W. Andrewes. Bacteriology (advanced): Dr. E. E. Klein. Chemical Pathology: Dr. A. E. Garrod. Morbid Anatomy and Post Mortems: Dr. T. J. Horder, Dr. Langdon Brown, and Mr. G. E. Gask. Practical Pathology: Mr. F. A. Rose, Dr. H. Thursfield, Mr. R. C. Elmslie, and Dr. Neligan. Ophthalmic Medicine and Surgery: Mr. W. H. Jessop. Diseases of the Eye: Mr. W. H. Jessop and Mr. W. Holmes Spicer. Ophthalmic Demonstrations: Mr. W. Holmes Spicer. Diseases of the Ear: Mr. A. E. Cumberbatch. Diseases of the Larynx: Mr. W. D. Harmer. Orthopædic Surgery: Mr. W. MacAdam Eccles. Diseases of the Skin: Dr. J. A. Ormerod. Diseases of Children: Dr. A. E. Garrod and Dr. H. Morley Fletcher. Medical Electricity and Electro-therapeutics: Dr. H. Lewis Jones. Mental Diseases and Insanity: Dr. T. Claye Shaw. Dental Surgery: Mr. W. B. Paterson and Mr. J. Ackery. Anæsthetics: Mr. R. Gill, Mr. W. F. Cross, and Mr. H. E. G. Boyle. Forensic Medicine: Dr. W. P. Herringham. Descriptive and Surgical Anatomy: Mr. H. J. Waring and Mr. W. McAdam Eccles. Practical Anatomy: Mr. C. E. West, Mr. C. G. Watson, Mr. T. J. Faulder, Mr. R. B. Etherington-Smith, and Mr. H. W. Wilson. General Anatomy and Physiology: Dr. J. S. Edkins. Practical Physiology: Dr. J. S. Edkins, Dr. W. Langdon Brown, and Mr. J. J. Paterson. Materia Medica, Pharmacology, and Therapeutics: Dr. James Calvert. Pharmacology: Dr. F. A. Bainbridge. Biology and Comparative Anatomy: Dr. T. W. Shore. Practical Biology: Dr. T. W. Shore, Mr. F. W. W. Griffin, and Mr. T. S. Lukis. Chemistry: Dr. W. H. Hurtley. Practical Chemistry: Dr. W. H. Hurtley and Mr. K. S. Caldwell. Physics: Mr. F. Womack. Practical Physics: Mr. F. Womack and Mr. Lloyd Hopwood. Botany: Rev. G. Henslow. Public Health: Dr. George Newman. Practical Hygiene and Public Health: Dr. J. K. Warry. Museum Curator: Dr. F. W. Andrewes. Junior Curator: Dr. W. P. S. Branson. Dean of the School: Dr. T. W. Shore. Warden of College: Mr. G. E. Gask.

CHARING CROSS HOSPITAL AND COLLEGE.—This hospital and convalescent home contain 300 beds, a certain proportion of which are set aside for the diseases of children and those special to women. Total fees, including students' club:—For general students: 1. Composition fee, payable in one sum on joining, 115 guineas. 2. Sessional payment system: Entrance fee, 10 guineas. In addition a sum of 15 guineas must be paid at the beginning of every Winter Session and one of 10 guineas at the beginning of every Summer Session so long as the student remains in the school. For Dental students: The fees for the two years' curriculum required by dental students may be paid: (*a*) in one sum of 55 guineas on entry; (*b*) in two instalments, one of 31 guineas on entry and the second of 30 guineas at the end of the first twelve months. General students pay proportionally lower fees and are admitted without additional fee to the courses of Clinical Medicine and Surgery. They are entitled to compete for the Scholarships, Gold Medal, Huxley, and Pereira Prizes.

Classes for the Preliminary Scientific and Intermediate Examinations of the University of London and for the Primary F.R.C.S. are held at this Medical School. There are also special classes for the practical work for the Department of Public Health and for the Primary F.R.C.S.

Staff.—Consulting Physicians: Sir J. Fayrer, Bart., M.D., Dr. Green, Dr. Bruce, and Dr. Abercrombie. Consulting Obstetric Physician: Dr. J. Watt Black. Physicians: Dr. Murray, Dr. Mott, and Dr. Galloway. Physician to Out-patients: Dr. Fenton. Assistant Physicians: Dr. Hunter, Dr. Bosanquet, and Dr. Forsyth. Consulting Surgeons: Mr. R. Barwell, Mr. Bloxam, and Mr. Morgan, C.V.O. Surgeons: Mr. Boyd, Mr. Waterhouse, and Mr. Wallis. Surgeon to Out-patients: Mr. Gibbs. Assistant Surgeons: Mr. Clogg and Mr. Daniel. Obstetric Physician: Dr. Amand Routh. Assistant Obstetric Physician: Dr. T. W. Eden. Physician for Diseases of the Skin: Dr. Galloway. Assistant Physician for Diseases of the Skin: Dr. MacLeod. Physician to the Electrical Department: Dr. Ironside Bruce. Surgeon for Nose, Throat, and Ear: Mr. Waggett. Ophthalmic Surgeon: Mr. Treacher Collins. Orthopædic Surgeon: Mr. Fairbank. Surgeon Dentist: Mr. J. F. Colyer. Physician for Mental Diseases: Dr. Mercier.

Lecturers: Winter Session.—Anatomy: Dr. Christopher Addison. Bacteriology: Mr. Leathem. Biology and Comparative Anatomy: Dr. H. W. Marett Tims. Chemistry and Physics: Dr. H. Forster Morley. Dental Surgery: Mr. J. F. Colyer. Medicine: Dr. H. Montague Murray and Dr. F. W. Mott. Ophthalmology: Mr. E. Treacher Collins. Physiology and Histology: Mr. C. F. Myers-Ward. Practical Anæsthetics: Mr. C. Carter Braine. Practical Anatomy: Dr. Christopher Addison. Practical Hygiene: Mr. Leathem and Dr. H. Forster Morley. Practical Medicine: Dr. Bosanquet and Dr. Fenton. Practical Midwifery: Dr. T. W. Eden. Practical Physiology: Mr. C. F. Myers-Ward. Practical Surgery: Mr. F. C. Wallis, Mr. H. S. Clogg, and Mr. Fairbank. Operative Surgery: Mr. Charles Gibbs. Psychological Medicine: Dr. Mercier. Surgery: Mr. H. F. Waterhouse. Tropical Medicine: Sir Patrick Manson.

Summer Session.—Anatomy: Dr. Christopher Addison. Anæsthetics: Mr. C. Carter Braine. Dental Surgery: Mr. J. F. Colyer. Forensic Medicine: Dr. Fenton. Materia Medica and Practical Pharmacy: Dr. Galloway. Midwifery: Dr. Amand Routh. Pathology: Dr. W. Hunter. Pharmacology and Therapeutics: Dr. Galloway. Anatomy: Dr. Christopher Addison. Practical Chemistry: Dr. H. Forster Morley. Practical Medicine: Dr. Bosanquet and Dr. Fenton. Practical Physiology: Mr. C. F. Myers-Ward. Public Health: Dr. H. T. Bulstrode. Toxicology: Dr. H. Forster Morley. Roentgen Ray: Mr. Mackenzie Davidson.

ST. GEORGE'S HOSPITAL.—This hospital contains 350 beds, of which 205 are allotted to surgical and 145 to medical cases. One ward is set apart for Diseases peculiar to Women. Children's beds are placed in all the women's wards. Two wards are allotted to ophthalmic cases.

The Winter Session commences on Oct. 1st but students can enter at any time or for any particular course. The Hospital and Medical School are situated at Hyde Park-corner and are readily accessible from all parts of London. Entrance Scholarships in Anatomy and Physiology are awarded at the commencement of each Winter Session. Prizes: The William Brown Exhibition of £100 per annum (tenable for two years) is awarded by examination to a perpetual pupil of the hospital every second year. The William Brown Exhibition of £40 (tenable for three years) is awarded by examination to a perpetual pupil of the hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the hospital. Students are permitted to enter the wards of the hospital at any hour. Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital. A large number of house office appointments are open without fee to every perpetual student of the hospital and are made strictly in accordance with the merits of the candidates. Special attention is directed to the following paid appointments, amongst others, which are open to students after they have held house office:—Medical Registrarship at £200 per annum; Surgical Registrarship at £200; Curatorship of the Museum at £200; Assistant Curatorship at £100; Obstetric Assistantship (Resident) at £50; Demonstratorship of Anatomy at £50; the post of Senior Anæsthetist at £50; the posts (2) of Junior Anæsthetists, each at £30. Great attention is paid by members of the staff to individual teaching. A number of special courses are given in which the requirements of university and other examinations receive careful attention. The following may be cited as examples:—(1) Elementary Bacteriology; (2) Advanced Bacteriology; (3) Clinical Pathology; (4) Systematic Pathology; (5) Histological Pathology and Morbid Anatomy; (6) Operative Surgery; (7) Public Health; and (8) Tropical Diseases. Special test examinations and classes are held by members of the staff for all examinations. The school possesses an Amalgamation Club, with well-fitted reading-, smoking-, and luncheon-rooms on the hospital premises. Students have the advantage of a well-filled library of medical and scientific books which is kept thoroughly up-to-date. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean. Further information may be obtained from the Dean of the Medical School. Mr. F. Jaffrey, Dean.

Staff.—Consulting Physicians: Sir Henry Pitman, Dr. W. H. Dickinson, Dr. T. T. Whipham, and Sir Isambard Owen. Consulting Surgeons: Mr. Holmes, Mr. Pick, and Mr. Hayward.

Consulting Obstetric Physician: Dr. Barnes. Consulting Ophthalmic Surgeon: Mr. Brudenell Carter. Consulting Aural Surgeon: Sir William Dalby. Consulting Dental Surgeon: Mr. Winterbottom. Physicians: Dr. William Ewart, Dr. H. D. Rolleston. Dr. Ogle, and Dr. Latham. Obstetric Physician: Dr. W. R. Dakin. Assistant Physicians: Dr. Collier, Dr. Spriggs, and Dr. Jex-Blake. Assistant Obstetric Physician: Dr. A. F. Stabb. Physician to the Skin Department: Dr. Wyndham Cottle. Physician Anæsthetist: Dr. F. Hewitt. Surgeons: Mr. C. T. Dent, Mr. G. R. Turner, Mr. A. M. Sheild, and Mr. F. Jaffrey. Ophthalmic Surgeon: Mr. H. B. Grimsdale. Assistant Surgeons: Mr. H. S. Pendlebury, Mr. T. Crisp English, and Mr. L. Jones. Surgeon to the Orthopædic Department: Mr. F. Jaffrey. Surgeon to the Throat Department: Mr. H. S. Barwell. Aural Surgeon: Mr. W. C. Bull. Dental Surgeon: Mr. N. G. Bennett. Assistant Dental Surgeon: Mr. Morley.

GUY'S HOSPITAL.—This hospital, founded by Thomas Guy in 1721 for the reception of 400 patients, and enlarged through the aid of a large bequest from the late William Hunt, contains at the present time 602 beds.

House physicians, house surgeons, assistant house physicians and assistant house surgeons, obstetric residents, ophthalmic house surgeons, clinical assistants, clerks to anæsthetists, surgeons' and assistant surgeons' dressers, surgical and medical clinical clerks, post-mortem clerks, extern obstetric attendants, and dressers and clerks in the special departments are appointed from among the students upon the recommendation of the medical council according to merit and without extra payment. The house physicians, of whom there are four, hold office for six months each. The assistant house physicians, who hold office for three months, attend in the out-patient department five afternoons in the week and see all the cases not seen by the assistant physician of the day. The house physicians have the care of the patients in the medical wards and attend to all emergencies arising in the absence of the physicians. They are provided with board and lodging in the college free of expense. The house surgeons, of whom there are four, hold office for six months each and are provided with board and lodging in the college free of expense. The Surgical Casualty Department is in charge of two assistant house surgeons and there are four out-patient officers appointed each three months. The surgeons' dressers are selected from those students who have completed their third winter session and have been most diligent in the junior appointments. They hold office for three or six months. Six are attached to each surgeon and during their weeks of special duty they are provided with board and lodging in the hospital free of expense. The obstetric residents, four in number, are provided with board and lodging in the college free of expense. The college stands upon a site fronting the east gate of the hospital and is connected with it by a subway. The building serves as a Residential College for Students and at the same time provides accommodation for the Students' Club.

Medical and Surgical Staff.—Consulting Physicians: Sir Samuel Wilks, Bart., Dr. F. W. Pavy, Dr. P. H. Pye-Smith, and Dr. J. F. Goodhart. Consulting Surgeons: Mr. Thomas Bryant, Sir H. G. Howse, and Mr. Jacobson. Consulting Obstetric Physician: Dr. A. L. Galabin. Consulting Physician for Mental Diseases: Dr. G. H. Savage. Consulting Aural Surgeon: Mr. W. Laidlaw Purves. Consulting Anæsthetist: Mr. Tom Bird. Physicians and Assistant Physicians: Dr. Frederick Taylor, Dr. W. Hale White, Dr. G. Newton Pitt, Sir Cooper Perry, Dr. L. E. Shaw, Dr. J. Fawcett, Dr. A. P. Beddard, and Dr. H. S French. Surgeons and Assistant Surgeons: Mr. C. H. Golding-Bird, Mr. Charters J. Symonds, Mr. W. Arbuthnot Lane, Mr. L. A. Dunn, Sir Alfred Fripp, C.B., C.V.O., Mr. F. J. Steward, Mr. Fagge, and Mr. R. P. Rowlands. Obstetric Physicians: Dr. P. Horrocks and Mr. J. H. Targett. Assistant Obstetric Physician: Mr. G. Bellingham Smith. Ophthalmic Surgeons: Mr. H. L. Eason and Mr. A. W. Ormond. Physician in Charge of Skin Department: Sir Cooper Perry. Physician for Mental Diseases: Dr. M. Craig. Surgeon in Charge of Throat Department: Mr. F. J. Steward. Surgeon in Charge of Aural Department: Mr. C. H. Fagge. Dental Surgeons: Mr. F. Newland-Pedley, Mr. W. A. Maggs, and Mr. R. Wynne Rouw. Anæsthetists: Mr. G. Rowell, Dr. H. F. Lancaster, Mr. C. J. Ogle, Mr. P. Turner, Mr. H. T. Hicks, Dr. D. Forsyth, Mr. W. M. Mollison, and Mr. A. R. Thompson. Medical Registrars and Tutors: Dr. H. F. Bell Walker and Mr. H. C. C. Mann. Obstetric Registrar and Tutor: Mr. H. T. Hicks. Surgical Registrar and Tutor: Mr. R. A. Greeves. Actino-Therapeutic Department: Mr. G. T. S. Sichel. Radiographer: Mr. E. W. H. Shenton. Bacteriologist to the Hospital: Dr. W. H. Eyre. Resident Surgical Officer: Mr. E. C. Hughes, M.B., B.C. Hon. Librarian, Wills Library: Dr. L. E. Shaw. Lying-in Charity: Mr. Targett and Mr. Bellingham Smith. Dean of the Medical School: Dr. H. L. Eason. Warden of the College: W. M. Mollison, M.C.

Lecturers and Demonstrators.—Clinical Medicine: the Physicians and Assistant Physicians. Clinical Surgery: the Surgeons and Assistant Surgeons. Medicine: Dr. Taylor and Dr. Hale White. Practical Medicine: Dr. Bell Walker and Mr. Mann. Surgery: Mr. Golding-Bird, Mr. Symonds, Mr. Lane, and Mr. Dunn. Operative Surgery: Sir Alfred Fripp and Mr. Steward. Practical Surgery: Mr. Greeves. Midwifery and Diseases of Women: Dr. Horrocks and Mr. Targett. Practical Obstetrics: Mr. Hicks. Mental Diseases: Dr. Craig. Ophthalmic Surgery: Mr. Eason. Dental Surgery: Mr. Wynne Rouw. Aural Surgery: Mr. Fagge. Diseases of the Skin: Sir Cooper Perry. Diseases of the Throat: Mr. Steward. Anæsthetics: Mr. Rowell. Hygiene and Public Health: Dr. Sykes. Pathology: Dr. Pitt. Gordon Lecturer on Experimental Pathology: Dr. F. A. Bainbridge. Morbid Anatomy: Dr. Fawcett and Dr. French. Morbid Histology and Bacteriology: Mr. Bellingham Smith and Dr. Eyre. Medical and Surgical Pathology Classes: Dr. Fawcett and Mr. Steward. Bacteriology: Dr. Eyre. Practical Bacteriology: Dr. Eyre. Forensic Medicine: Sir Thomas Stevenson, M.D. Anatomy: Sir Alfred Fripp and Mr. Steward. Practical Anatomy: Mr. P. Turner, Mr. W. M. Mollison, and Mr. A. R. Thompson, M.B, Ch.B. Physiology: Dr. Pembrey. Practical Physiology: Dr. Pembrey, Mr. A. F. Hertz, M.B, B Ch., and Mr. H. C. Cameron, M B., B.C. Materia Medica and Therapeutics: Dr. A. P. Beddard. Practical Pharmacy: the Hospital Pharmacist. Chemistry: Dr. Wade. Practical Chemistry: Dr. Wade, Mr. Ball, and Mr. Merriman. Experimental Physics: Dr. Fison and Mr. Merriman. Biology: Mr. Assheton, Dr. Stevens, and Mr. Thompson. Psychology: Dr. Craig.

KING'S COLLEGE.—The Faculty of Medicine at King's College is now divided into two parts; the first is concerned with Preliminary and Intermediate subjects and instruction on these is given in the College laboratories. This department is now designated Faculty of Science (Medical division); the second deals with the Advanced or Final subjects of the curriculum, instruction on which is given at the hospital, except in subjects like Bacteriology where laboratory courses are necessary.

Lecturers on Preliminary and Intermediate Subjects.—Anatomy: Dr. P. Thompson (Professor) and Dr. C. J. Jenkins (Lecturer). Physiology: Dr. W. D. Halliburton (Professor), Dr. H. W. Lyle (Lecturer), Dr. O. Rosenheim (Lecturer on Chemical Physiology), and Dr. C. S. Myers (Lecturer on Experimental Psychology). Zoology: Dr. A. Dendy (Professor). Botany: Dr. W. B. Bottomley (Professor) and Mr. E. J. Schwartz (Demonstrator). Chemistry: Dr. J. M. Thomson (Professor), Mr. H. Jackson (Assistant Professor), and Mr. P. H. Kirkaldy (Lecturer). Physics: Dr. Wilson. Materia Medica and Pharmacology: Dr. W. E. Dixon (Professor).

Fees.—For London University Course: for Preliminary Scientific (Part I.), 25 guineas; for Preliminary Scientific (Part II.) and Intermediate M.B., 55 guineas, or two instalments of 30 guineas each. For Conjoint Board Course: for First examination, 20 guineas; for Second examination, 55 guineas, or two instalments of 30 guineas each. For prospectus and further information application should be made to Dr. P. Thompson, Dean of the department.

King's College Hospital contains 217 available beds. Resident medical officers have rooms at the hospital and commons free; they are selected by examination and hold their appointment for six months or a year. There are two house physicians, two physician accoucheur assistants, and three house surgeons. Sambrooke registrarships, value £50 per annum, are tenable for two years. There are also senior medical and surgical, and obstetric registrars and tutors, value £50 and £30 per annum respectively. Clinical assistants senior and junior of the special departments—ophthalmic, ear, throat, skin, children, and dental—senior dressers and dressers, clinical clerks, &c., are elected by examination or in consideration of their former work in the Faculty of Science (medical division).

Hospital Staff.—Consulting Physicians: Sir A. B. Garrod, Dr. Alfred B. Duffin, and Dr. I. Burney Yeo. Consulting Surgeons: Lord Lister and Mr. W. Rose. Physicians: Dr. David Ferrier, Dr. Nestor Tirard, Dr. Norman Dalton, Sir Hugh Beevor, Bart., and Dr. Raymond Crawfurd. Surgeons: Mr. W. Watson Cheyne, Mr. A. B. Barrow, Mr. A. Carless, Mr. F. F. Burghard, Mr. G. L. Cheatle, and Mr. P. T. B. Beale. Assistant Physicians: Dr. W. Aldren Turner and Dr. Tunnicliffe. Obstetric Physician: Dr. John Phillips. Assistant Obstetric Physician: Dr. Hugh Playfair. Physician for the Diseases of Children: Dr. George F. Still. Diseases of the Throat: Dr. StClair Thomson. Dental Surgeon: Mr. A. S. Underwood. Assistant Dental Surgeon: Mr. C. E. Wallis. Ophthalmic Surgeons: Mr. M. M. McHardy and Mr. L. V. Cargill. Aural Surgeons: Dr. Urban Pritchard and Mr. Arthur H. Cheatle. Physician for Diseases of the Skin: Dr. A. Whitfield. Pathological Registrar: Dr. Norman Dalton. Physician in charge of Electrical Department: Dr. W. Aldren Turner. Medical Officer in charge of X Ray Department: Mr. A. D. Reid. Anæsthetist and Instructor in Anæsthetics: Dr. J. F. W. Silk. Assistant Anæsthetist: Dr. G. B. Flux. Senior Medical Registrar and Tutor: Dr. J. C. Briscoe. Senior Surgical Registrar and Tutor: Dr. T. Percy Legg. Obstetric Registrar and Tutor: Dr. G. de B. Turtle. Sambrooke Registrars: Mr. H. W. Wiltshire and Mr. R. H. Gompertz. Clinical Pathologist: Dr. Emery.

Lecturers on Final Subjects.—Medicine (Principles and Practice of): Dr. Nestor Tirard (Professor). Neuro-Pathology: Dr. D. Ferrier (Professor) and Dr. W. A. Turner (Demonstrator). Psychological Medicine: Dr. Ernest W. White (Professor). Surgery (Principles and Practice of): Mr. A. Carless (Professor). Surgery (Operative): Mr. F. F. Burghard (Teacher). Surgical Pathology: Mr. G. L. Cheatle (Teacher). Obstetric Medicine and Diseases of Women and Children: Dr. John Phillips (Professor). Practical Obstetrics: Dr. Hugh Playfair (Lecturer). Diseases of Children: Dr. G. F. Still (Professor). Pathology: Dr. N. Dalton (Professor). Forensic Medicine: Dr. W. R. Smith (Professor). Hygiene: Dr. W. J. R. Simpson (Professor). State Medicine: Dr. Hewlett (Professor) and Mr. D. Somerville (Demonstrator). Bacteriology: Dr. Hewlett (Professor) and Dr. F. E. Taylor. Ophthalmic Surgery: Mr. M. M. McHardy (Professor). Aural Surgery: Dr. Urban Pritchard (Professor). Anæsthetics: Dr. J. F. W. Silk. Dental Surgery: Mr. A. S. Underwood (Professor). Diseases of the Skin: Dr. A. Whitfield (Physician).

Fees.—The composition fee for Hospital work and Final subjects of the curriculum is 70 guineas in one sum or in two equal instalments of 36 guineas payable on entrance and on commencement of second year of study respectively. For information and prospectus application should be made to Peyton T. B. Beale, F.R C S , Dean of the Hospital. For information regarding fees, curriculum, &c., in Public Health and Bacteriology application should be made to Professor Hewlett.

Athletic Club.—All students are entitled to the privileges of the Athletic Club, which manages a large recreation ground of the College at Wormwood Scrubs.

LONDON HOSPITAL AND COLLEGE.—The hospital has nearly 929 beds in constant use and *no* beds are closed. Being the only general hospital for East London—i.e., for a million and a half people—the practice is immense. In-patients last year, 13,552; out-patients, 209,272; accidents, 15,719; major operations, 3353. Owing to the enormous number of patients more appointments are open to students than at any other hospital. Receiving-room officers, house physicians, house surgeons, &c.: 90 of these qualified appointments are made annually and more than 150 dressers, clinical clerks, &c., appointed every three months. All are free to students of the College. Holders of resident appointments have free board. Thirty-seven scholarships and prizes are given annually. Seven entrance scholarships, £120, £120, £60, £60, £35, £30, £20, are offered in September. Special classes are held for the University of London and other higher examinations. Special entries for medical and surgical practice can be made. Lectures and classes and held throughout the year to suit the requirements of candidates desirous of obtaining the diploma in Public Health. The Lecturer on Public Health has his offices in the College, enabling the candidates to attend daily to work under his supervision. These courses are recognised both by the Universities of Oxford, Cambridge, London, &c., and by the Examining Board in England. A reduction of 15 guineas is made from the perpetual fee to the sons of members of the profession. The new laboratories and class-rooms for Bacteriology, Public Health, Operative Surgery, Chemistry, and Biology are now in full use. The new Clubs Union Rooms, Garden, and Fives Court are now open. The Clubs Union Athletic Ground is within easy reach of the hospital. The Metropolitan and other railways have stations close to the hospital and the college.

Staff.—Consulting Physicians: Dr. Hughlings Jackson, Dr. Sansom, and Sir Stephen Mackenzie. Consulting Surgeons: Mr. Hutchinson, Mr. Couper, Mr. McCarthy, Sir Frederick Treves, Bart., and Mr. Tay. Consulting Obstetric Physician: Dr. Herman. Physicians: Dr. Francis Warner, Dr. Percy Kidd, Dr. Frederick J. Smith, Dr. W. J. Hadley, Dr. G. Schorstein, Dr. Bertrand Dawson, and Dr. Henry Head. Assistant Physicians: Dr. Robert Hutchison, Dr. Lewis Smith, Dr. Wall, and Dr. Grünbaum. Surgeons: Mr. C. W. Mansell-Moullin, Mr. Hurry Fenwick, Mr. F. S. Eve, Mr. J. Hutchinson, jun., Mr. T. H. Openshaw, Mr. H. P. Dean, and Mr. P. Furnivall. Assistant Surgeons: Mr. H. Barnard, Mr. Rigby, Mr. Sherren, and Mr. Lett. Obstetric Physician: Dr. Lewers. Assistant Obstetric Physician: Dr. Andrews. Physician to the Skin Department: Dr. Sequeira. Consulting Dental Surgeon: Mr. Barrett. Consulting Anæsthetist: Dr. Hewitt. Ophthalmic Surgeons: Mr. A. B. Roxburgh and Mr. Lister. Surgeon to the Throat Department: Dr. Lambert Lack. Aural Surgeon: Mr. Hunter Tod. Medical Officer in charge of the Electrical Department: Dr E. R. Morton. Physician in charge of the Photo-therapy Department: Dr. Sequeira. Analyst to the Hospital: Mr. Hugh Candy. Bacteriologist to the Hospital: Dr. W. Bulloch. Dental Surgeons: Mr. Dolamore and Mr. Farmer. Anæsthetists: Dr. Probyn-Williams, Mr. Hilliard, and Mr. Clapham.

Lecturers.—Medicine: Dr. Percy Kidd and Dr. Hadley. Clinical Medicine: the Physicians and Assistant Physicians. Surgery: Mr. C. W. Mansell-Moullin. Clinical Surgery: the Surgeons and Assistant Surgeons. Anatomy: Dr. A. Keith. Physiology: Dr. Leonard Hill, Dr. Grünbaum, and Mr. Greenwood. Chemistry: Mr. F. J. M. Page and Mr. Hugh Candy. Pathology—(1) Medical: Dr. Schorstein; (2) General and (3) Surgical: Dr. W. Bulloch. Midwifery and Diseases of Women: Dr. Lewers. Clinical Obstetrics: The Obstetric Physicians. Practical Obstetrics: Dr. Andrews. Forensic Medicine—(1) Public Health: Dr. J. C. Thresh; and (2) Medical Jurisprudence and Toxicology: Dr. F. J. Smith. Public Health and Sanitary Science: Dr. W. Bulloch, Dr. John C. Thresh, and Mr. F. J. M. Page. Mental Diseases: Dr. J. Kennedy Will. Materia Medica and General Therapeutics: Dr. Francis Warner and Dr. Grünbaum. Biology: Mr. G. P. Mudge. Experimental Physics: Mr. F. J. M. Page, Mr. Hugh Candy, and Mr. Griffith. Ophthalmic Surgery: Mr. A. B. Roxburgh. Diseases of the Throat: Dr. Lambert Lack. Aural Surgery: Mr. Hunter Tod. Anatomy and Pathology of the Teeth: Mr. H. Dolamore and Mr. F. M. Farmer. Practical Anatomy: Dr. Arthur Keith, Mr. Howard, and Mr. Patterson. Practical Physiology and Histology: Dr. Leonard Hill, Dr. Grünbaum, and Mr. Greenwood. Foods and Dietetics: Dr. R. Hutchison. Practical Chemistry: Mr. F. J. M. Page and Mr. Hugh Candy. Operative Surgery: Mr. H. P. Dean. Demonstrators of Morbid Anatomy: Dr. F. J. Smith, Dr. W. J. H. Hadley, Dr. Dawson, and Dr. Lewis Smith. Bacteriology: Dr. W. Bulloch and Mr. Twort. Pathological Histology: Dr. W. Bulloch. Inoculation Department: Dr. Western. Therapeutic Electricity and Radiography: Dr. A. E. Morton. Anæsthetics: Dr. R. J. Probyn-Williams. Elementary Clinical Medicine: Dr. Robert Hutchison and Dr. Lewis Smith. Medical Tutor: Dr. Wall. Elemental Clinical Surgery: Mr. H. M. Rigby and Mr. J. Sherren. Surgical Tutor: Mr. Sherren. Obstetric Tutor: Dr. H. R. Andrews. As Emeritus Professor of Surgery Mr. Hutchinson will give in the Summer Session, and Sir Frederick Treves, Bart., will give in the Winter

Consulting Obstetric Physician: Dr. Barnes. Consulting Ophthalmic Surgeon: Mr. Brudenell Carter. Consulting Aural Surgeon: Sir William Dalby. Consulting Dental Surgeon: Mr. Winterbottom. Physicians: Dr. William Ewart, Dr. H. D. Rolleston. Dr. Ogle, and Dr. Latham. Obstetric Physician: Dr. W. R. Dakin. Assistant Physicians: Dr. Collier, Dr. Spriggs, and Dr. Jex-Blake. Assistant Obstetric Physician: Dr. A. F. Stabb. Physician to the Skin Department: Dr. Wyndham Cottle. Physician Anæsthetist: Dr. F. Hewitt. Surgeons: Mr. C. T. Dent, Mr. G. R. Turner, Mr. A. M. Sheild, and Mr. F. Jaffrey. Ophthalmic Surgeon: Mr. H. B. Grimsdale. Assistant Surgeons: Mr. H. S. Pendlebury, Mr. T. Crisp English, and Mr. L. Jones. Surgeon to the Orthopædic Department: Mr. F. Jaffrey. Surgeon to the Throat Department: Mr. H. S. Barwell. Aural Surgeon: Mr. W. C. Bull. Dental Surgeon: Mr. N. G. Bennett. Assistant Dental Surgeon: Mr. Morley.

GUY'S HOSPITAL.—This hospital, founded by Thomas Guy in 1721 for the reception of 400 patients, and enlarged through the aid of a large bequest from the late William Hunt, contains at the present time 602 beds.

House physicians, house surgeons, assistant house physicians and assistant house surgeons, obstetric residents, ophthalmic house surgeons, clinical assistants, clerks to anæsthetists, surgeons' and assistant surgeons' dressers, surgical and medical clinical clerks, post-mortem clerks, extern obstetric attendants, and dressers and clerks in the special departments are appointed from among the students upon the recommendation of the medical council according to merit and without extra payment. The house physicians, of whom there are four, hold office for six months each. The assistant house physicians, who hold office for three months, attend in the out-patient department five afternoons in the week and see all the cases not seen by the assistant physician of the day. The house physicians have the care of the patients in the medical wards and attend to all emergencies arising in the absence of the physicians. They are provided with board and lodging in the college free of expense. The house surgeons, of whom there are four, hold office for six months each and are provided with board and lodging in the college free of expense. The Surgical Casualty Department is in charge of two assistant house surgeons and there are four out-patient officers appointed each three months. The surgeons' dressers are selected from those students who have completed their third winter session and have been most diligent in the junior appointments. They hold office for three or six months. Six are attached to each surgeon and during their weeks of special duty they are provided with board and lodging in the hospital free of expense. The obstetric residents, four in number, are provided with board and lodging in the college free of expense. The college stands upon a site fronting the east gate of the hospital and is connected with it by a subway. The building serves as a Residential College for Students and at the same time provides accommodation for the Students' Club.

Medical and Surgical Staff.—Consulting Physicians: Sir Samuel Wilks, Bart., Dr. F. W. Pavy, Dr. P. H. Pye-Smith, and Dr. J. F. Goodhart. Consulting Surgeons: Mr. Thomas Bryant, Sir H. G. Howse, and Mr. Jacobson. Consulting Obstetric Physician: Dr. A. L. Galabin. Consulting Physician for Mental Diseases: Dr. G. H. Savage. Consulting Aural Surgeon: Mr. W. Laidlaw Purves. Consulting Anæsthetist: Mr. Tom Bird. Physicians and Assistant Physicians: Dr. Frederick Taylor, Dr. W. Hale White, Dr. G. Newton Pitt, Sir Cooper Perry, Dr. L. E. Shaw, Dr. J. Fawcett, Dr. A. P. Beddard, and Dr. H. S French. Surgeons and Assistant Surgeons: Mr. C. H. Golding-Bird, Mr. Charters J. Symonds, Mr. W. Arbuthnot Lane, Mr. L. A. Dunn, Sir Alfred Fripp, C.B., C.V.O., Mr. F. J. Steward, Mr. Fagge, and Mr. R. P. Rowlands. Obstetric Physicians: Dr. P. Horrocks and Mr. J. H. Targett. Assistant Obstetric Physician: Mr. G. Bellingham Smith. Ophthalmic Surgeons: Mr. H. L. Eason and Mr. A. W. Ormond. Physician in Charge of Skin Department: Sir Cooper Perry. Physician for Mental Diseases: Dr. M. Craig. Surgeon in Charge of Throat Department: Mr. F. J. Steward. Surgeon in Charge of Aural Department: Mr. C. H. Fagge. Dental Surgeons: Mr. F. Newland-Pedley, Mr. W. A. Maggs, and Mr. R. Wynne Rouw. Anæsthetists: Mr. G. Rowell, Dr. H. F. Lancaster, Mr. C. J. Ogle, Mr. P. Turner, Mr. H. T. Hicks, Dr. D. Forsyth, Mr. W. M. Mollison, and Mr. A. R. Thompson. Medical Registrars and Tutors: Dr. H. F. Bell Walker and Mr. H. O. C. Mann. Obstetric Registrar and Tutor: Mr. H. T. Hicks. Surgical Registrar and Tutor: Mr. R. A. Greeves. Actino-Therapeutic Department: Mr. G. T. S. Sichel. Radiographer: Mr. E. W. H. Shenton. Bacteriologist to the Hospital: Dr. W. H. Eyre. Resident Surgical Officer: Mr. E. C. Hughes, M.B., B.C. Hon. Librarian, Wills Library: Dr. L. E. Shaw. Lying-in Charity: Mr. Targett and Mr. Bellingham Smith. Dean of the Medical School: Dr. H. L. Eason. Warden of the College: W. M. Mollison, M.C.

Lecturers and Demonstrators.—Clinical Medicine: the Physicians and Assistant Physicians. Clinical Surgery: the Surgeons and Assistant Surgeons. Medicine: Dr. Taylor and Dr. Hale White. Practical Medicine: Dr. Bell Walker and Mr. Mann. Surgery: Mr. Golding-Bird, Mr. Symonds, Mr. Lane, and Mr. Dunn. Operative Surgery: Sir Alfred Fripp and Mr. Steward. Practical Surgery: Mr. Greeves. Midwifery and Diseases of Women: Dr. Horrocks and Mr. Targett. Practical Obstetrics: Mr. Hicks. Mental Diseases: Dr. Craig. Ophthalmic Surgery: Mr. Eason. Dental Surgery: Mr. Wynne Rouw. Aural Surgery: Mr. Fagge. Diseases of the Skin: Sir Cooper Perry. Diseases of the Throat: Mr. Steward. Anæsthetics: Mr. Rowell. Hygiene and Public Health: Dr. Sykes. Pathology: Dr. Pitt. Gordon Lecturer on Experimental Pathology: Dr. F. A. Bainbridge. Morbid Anatomy: Dr. Fawcett and Dr. French. Morbid Histology and Bacteriology: Mr. Bellingham Smith and Dr. Eyre. Medical and Surgical Pathology Classes: Dr. Fawcett and Mr. Steward. Bacteriology: Dr. Eyre. Practical Bacteriology: Dr. Eyre. Forensic Medicine: Sir Thomas Stevenson, M.D. Anatomy: Sir Alfred Fripp and Mr. Steward. Practical Anatomy: Mr. P. Turner, Mr. W. M. Mollison, and Mr. A. R. Thompson, M.B, Ch.B. Physiology: Dr. Pembrey. Practical Physiology: Dr. Pembrey, Mr. A. F. Hertz, M.B, B Ch., and Mr. H. C. Cameron, M B., B.C. Materia Medica and Therapeutics: Dr. A. P. Beddard. Practical Pharmacy: the Hospital Pharmacist. Chemistry: Dr. Wade. Practical Chemistry: Dr. Wade, Mr. Ball, and Mr. Merriman. Experimental Physics: Dr. Fison and Mr. Merriman. Biology: Mr. Assheton, Dr. Stevens, and Mr. Thompson. Psychology: Dr. Craig.

KING'S COLLEGE.—The Faculty of Medicine at King's College is now divided into two parts; the first is concerned with Preliminary and Intermediate subjects and instruction on these is given in the College laboratories. This department is now designated Faculty of Science (Medical division); the second deals with the Advanced or Final subjects of the curriculum, instruction on which is given at the hospital, except in subjects like Bacteriology where laboratory courses are necessary.

Lecturers on Preliminary and Intermediate Subjects.—Anatomy: Dr. P. Thompson (Professor) and Dr. C. J. Jenkins (Lecturer). Physiology: Dr. W. D. Halliburton (Professor), Dr. H. W. Lyle (Lecturer), Dr. O. Rosenheim (Lecturer on Chemical Physiology), and Dr. C. S. Myers (Lecturer on Experimental Psychology). Zoology: Dr. A. Dendy (Professor). Botany: Dr. W. B. Bottomley (Professor) and Mr. E. J. Schwartz (Demonstrator). Chemistry: Dr. J. M. Thomson (Professor), Mr. H. Jackson (Assistant Professor), and Mr. P. H. Kirkaldy (Lecturer). Physics: Dr. Wilson. Materia Medica and Pharmacology: Dr. W. E. Dixon (Professor).

Fees.—For London University Course: for Preliminary Scientific (Part I.), 25 guineas; for Preliminary Scientific (Part II.) and Intermediate M.E., 55 guineas, or two instalments of 30 guineas each. For Conjoint Board Course; for First examination, 20 guineas; for Second examination, 55 guineas, or two instalments of 30 guineas each. For prospectus and further information application should be made to Dr. P. Thompson, Dean of the department.

King's College Hospital contains 217 available beds. Resident medical officers have rooms at the hospital and commons free; they are selected by examination and hold their appointment for six months or a year. There are two house physicians, two physician accoucheur assistants, and three house surgeons. Sambrooke registrarships, value £50 per annum, are tenable for two years. There are also senior medical and surgical, and obstetric registrars and in Surgery: The Surgeons. Clinical Lectures on Diseases of the Ear, Throat, and Nose: Mr. S. Paget. Lectures in Ophthalmology: Mr. Lang. Lectures in Dental Surgery: Mr. Hern. Public Health and Bacteriology: Mr. Foulerton. Summer Session: Pharmacology and Therapeutics: Dr. R. A. Young. Midwifery: Dr. Comyns Berkeley. Pathological Histology: Dr. Voelcker. Practical Toxicology: Dr. Kellas. Tropical Medicine: Dr. Crombie. Mental Diseases: Dr. Mickle. Lectures in Dermatology: Dr. Pringle. Anatomy, Chemistry, and Physiology: as in Winter Session. Tutors—Medicine: Dr. Campbell Thomson; Surgery: Mr. Kellock; Obstetrics: Dr. Victor Bonney; Practical Pharmacy: Mr. Fardon.

ST. THOMAS'S HOSPITAL.—The annual composition fee is 30 guineas—in addition to a fee on entrance. Qualified practitioners are admitted by a joint ticket to the practice of 15 hospitals on terms which may be ascertained from the medical secretary.

Staff.—Consulting Physicians: Dr. Harley and Dr. Payne. Consulting Surgeon: Mr. S. Jones. Consulting Obstetrical Physicians: Dr. Gervis and Dr. Cullingworth. Consulting Ophthalmic Surgeons: Mr. Liebreich and Mr. Nettleship. Consulting Anæsthetist: Mr. W. Tyrrell. Physicians: Dr. Sharkey, Dr. Acland, Dr. Hawkins, and Dr. Mackenzie. Surgeons: Mr. Clutton, Mr. Pitts, Mr. G. H. Makins, C.B., Mr. Battle, and Mr. Ballance. Physicians to Out-patients: Dr. Turney, Dr. Perkins, Dr. Colman, and Dr. Box. Surgeons to Out-patients: Mr. H. B. Robinson, Mr. C. S. Wallace, and Mr. E. M. Corner. Obstetrical Physician: Dr. Tate. Obstetrical Physician to Out-patients: Dr. Fairbairn. Ophthalmic Surgeon: Mr. Lawford. Ophthalmic Surgeon to Out-patients: Mr. Fisher (Dean of the school). Physician for Diseases of Children: Dr. Box. Surgeon for Diseases of Children: Mr. P. W. G. Sargent. Surgeon for Diseases of the Throat: Mr. H. B. Robinson. Physician for Diseases of the Skin: Dr. E. Stainer. Surgeon for Diseases of the Ear: Mr. Ballance, with Mr. Marriage in charge of Out-patients. Physician, Electrical Department: Dr. Turney. Dental Surgeons: Mr. J. G. Turner and Mr. G. L. Bates. Resident Assistant Physician: Dr. Harwood-Yarred. Resident Assistant Surgeon: Mr. C. A. R. Nitch. Anæsthetists: Mr. H Low, Dr. Bevan, Mr. Mennell, and Dr. Hedley. Pharmaceutist: Mr. H. Wilson. Curator of Museum: Mr. S. G. Shattock. Superintendent of Clinical Laboratory: Mr. Dudgeon. Superintendent of X-ray Department: Dr. Greg.

Lecturers: Winter Session.—Practical Anatomy Demonstrators: Mr. F. G. Parsons and Mr. P. W. G. Sargent. Descriptive and Surgical Anatomy: Mr. F. G. Parsons. Chemistry and Physical Chemistry: Dr. Le Sueur. Physiology and General Anatomy: Dr. J. B. Leathes. Biology: Mr. T. G. Hill. Pathology and Bacteriology: Dr. Turney, Mr. Shattock, and Mr. Dudgeon. Surgery: Mr. Makins and Mr. Ballance. Theory and Practice of Medicine: Dr. Sharkey and Dr. Hawkins. Practical and Manipulative Surgery: Mr. Robinson and Mr. Wallace. Comparative Anatomy: Mr. Parsons. Applied Anatomy: Dr. Box. Anæsthetics: Mr. Tyrrell and Dr. Low. Physics and Natural Philosophy: Dr. Le Sueur. Clinical Medicine: The Physicians. Surgery: The Surgeons. Clinical Midwifery and Diseases of Women: Dr. Tate. Diseases of the Eye: Mr. Lawford. Pharmacology and Therapeutics: Dr. Perkins. Clinical Lectures on Throat Disease: Mr. H. B. Robinson. Physiological Demonstrator: Mr J. F. Cunningham. Obstetrical Demonstrators: Dr. Fairbairn and Dr. Bell. Elementary Clinical Medicine: Dr. Perkins, Dr. Colman, and Dr. Box. Surgical Classes: Mr. Wallace, Mr. Corner, Mr. Fisher, and Mr. Shattock.

Summer Session.—Anatomical Demonstrators: Mr. F. G. Parsons and Mr. P. W. G. Sargent. Biology: Mr. T. G. Hill. Forensic Medicine and Toxicology: Dr. Colman. Midwifery: Dr. Tate. Botany: Mr. Hill. Chemistry and Practical Chemistry: Dr. Le Sueur. Mental Diseases: Dr. R. Percy Smith. Public Health: Dr. E. Seaton. Practical and Manipulative Surgery: Mr. Robinson and Mr. Wallace. Practical Physiology: Dr. J. B. Leathes. Diseases of the Eye: Mr. Lawford. Pathology and Bacteriology: Dr. Turney, Mr. Shattock, and Mr Dudgeon. Operative Surgery: Mr. Battle, Mr. Robinson, and Mr. Wallace. Lectures on Clinical Medicine and Surgery are delivered every Wednesday and Thursday. Special Departments for the Diseases of Women and Children, and for Diseases of the Eye, Skin, Throat, and Ear. Instruction in Electro-Therapeutics by Dr. Turney. Instruction in Dental Surgery by Mr. J. G. Turner and Mr. G. L. Bates. Instruction in Vaccination by Dr. Cope.

UNIVERSITY COLLEGE, LONDON.—*Faculty of Medical Sciences.*—Provost: T. Gregory Foster, Ph.D. Dean: Professor G. D. Thane. Vice-Dean: Professor F. T. Trouton.

Composition fees.—For the courses required by the University of London. 1. For the Preliminary Scientific Course, 25 guineas, entitling to one attendance. 2. For the Intermediate Course, 55 guineas if paid in one sum; 60 guineas if paid in two instalments of £30 guineas each. This fee entitles to attendance on Anatomy and Physiology during three years and to one attendance on Organic Chemistry, Pharmacology, and Materia Medica.

For the medical education required by the Examining Board in England and the Society of Apothecaries. First examination, Parts I., II., III., 20 guineas, entitling to one attendance; first examination, Part IV., and second examination, 55 guineas if paid in one sum, and 60 guineas if paid in two instalments of 30 guineas each. This fee entitles to attendance during three years.

Professors and Lecturers.—1. Preliminary Scientific Course.—Chemistry: Professor Sir William Ramsay, K.C.B., F.R.S.; assistants, Professor E. C. C. Baly, F.I.C., J. K. H. Inglis, D.Sc., M.A., N. T. M. Wilsmore, M.Sc., Samuel Smiles, D.Sc.; demonstrators, E. Foxwell, W. H. Gibson, T. P. Hilditch, H. E. Watson. Physics: Professor F. T. Trouton, M.A., F.R.S.; assistants, Professor A. W. Porter, B.Sc., N. Eumorfopoulos, B.Sc., A. O. Rankine, B.Sc. Botany: Professor F. W. Oliver, M.A., D.Sc., F.R.S.; assistant professors, A. G. Tansley, M.A., F. E. Fritsch, D.Sc., Ph.D. Zoology: Professor J. P. Hill, D.Sc.; assistant professor, G. C. Chubb, D.Sc. 2. Intermediate Course.—Anatomy: Professor G. D. Thane, LL.D.; demonstrators, W. B. L. Trotter, M.S., F.R.C.S., G. E. Waugh, B.S., F.R.C.S.; assistant demonstrators, W. Appleyard, M.B., B.S., H. T. Mant, M.B., B.S. Physiology: Professor E. H. Starling, M.D., B.S., F.R.C.P., F.R.S.; assistant professors, W. M. Bayliss, M.A., D.Sc., F.R.S., G. A. Buckmaster, M.A., M.D., D.P.H.; assistants, R. H. Aders-Plimmer, D.Sc., J. M. Hamill, M.A., M.B., B.C. Cantab., B.Sc. Lond. Lecturers: J. H. Parsons, M.B., D.Sc., F.R.C.S., W. Page May, M.D., D.Sc., F.R.C.S., S. B. Schryver, D.Sc. Pharmacology: Professor A. R. Cushny. Organic Chemistry: Professor J. Norman Collie.

University College Hospital Medical School.—Dean: Professor Sidney Martin, M.D., F.R.C.P., F.R.S. Vice-Dean: H. Batty Shaw, M.D., F.R.C.P. Fees for Preliminary and Intermediate Course: See under University College, above. For the Final M.B., B.S. Course, 80 guineas if paid in one sum, 82 guineas if paid in two instalments, as follows—first year, 50 guineas; second year, 32 guineas. This fee entitles to attendance on Lectures and Hospital Practice during three years and to one attendance on Practical Pathology and Practical Surgery. Vaccination and attendance at a Fever Hospital are not included. Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance. This course of instruction is also suitable for the corresponding examinations at the Universities of Oxford, Cambridge, and Durham.

For the medical education required by the Examining Board in England and the Society of Apothecaries. For the Course required for the third examination, 80 guineas if paid in one sum and 82 guineas if paid in two instalments, as follows—first year, 50 guineas; second year, 32 guineas. This fee entitles to attendance on Lectures and Hospital Practice during three years and to one attendance on Practical Pathology and Practical Surgery. Pharmacy, Vaccination, and attendance at a Fever Hospital are not included. Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance. The composition fee for the courses required for the L.D.S. is 65 guineas, or exclusive of Chemistry, Practical Chemistry, Physics, and Materia Medica 50 guineas.

Eight house physicians, eight house surgeons, four senior and four junior obstetric assistants, and two ophthalmic assistants are selected annually by examination from among the senior students who have a medical qualification. The house physicians and house surgeons reside in the hospital for a period of six months, and the senior obstetric

Session a course of lectures in Clinical Surgery. The special subjects and the dates will be announced in due course. Dr. Hewitt, as Emeritus Lecturer on Anæsthetics, will give a course of lectures during the first half of the Winter Session. Warden: Mr. Munro Scott.

ST. MARY'S HOSPITAL.—The hospital contains 281 beds. The situation of the hospital in the centre of the residential districts of Paddington, Bayswater, and North Kensington renders it especially convenient to students who wish to reside in the immediate vicinity, and a register of approved lodgings is kept in the office or the Medical School. All clinical appointments in the hospital are free to students of the Medical School and the resident medical officers are chosen by competitive examination. Six house physicians, six house surgeons, four obstetric officers, and two resident anæsthetists are appointed in each year and receive board and residence in the hospital. Entrance scholarships in Natural Science, one of £145, one of £78 15*s.*, two of £52 10*s.*, and two of £63 (for University students), are awarded annually by examination in September.

Enlargement of the Hospital.—With the opening of the Clarence Wing the number of beds will be raised to 350, and additional operating theatres, a clinical theatre, and a clinical laboratory will be provided.

During the past year a department for Therapeutic Inoculation has been instituted under Sir Almroth Wright, F.R.S., the work being carried on in two special laboratories in the Museum Buildings.

Special Tuition.—In addition to systematic courses of lectures and demonstrations special tuition is provided for the Intermediate and Final Examinations of the Universities of Oxford, Cambridge, and London, and for the Primary and Final F.R.C.S.

Preliminary Scientific Course.—Special classes, including lectures and laboratory work, are held throughout the year under recognised teachers of the University of London.

The composition fee for full students is £140 if paid in one sum, or £145 if paid in four instalments. University students who have completed their examinations in Anatomy and Physiology are admitted on payment of a composition fee of 60 guineas (£63) paid in one sum or by payment of two annual instalments of 35 guineas (£36 15*s.*) and 30 guineas (£31 10*s.*) respectively. University students who have not completed their examination in Anatomy and Physiology pay an annual fee of 25 guineas (£26 5*s.*) until they have passed these examinations, and then pay the composition fee. Separate courses of lectures, laboratory work, or hospital practice may be taken. The School Calendar and full information can be obtained from the Secretary, St. Mary's Hospital Medical School, Paddington, W.

Staff.—Consulting Physicians: Sir William Broadbent and Dr. Cheadle. Consulting Surgeons: Mr. A. T. Norton, Mr. Edmund Owen, Mr. Herbert Page, Mr. G. P. Field (Aural), Mr. Howard-Hayward (Dental), Sir G. Anderson Critchett (Ophthalmic), and Mr. Malcolm Morris (Skin). Physicians: Dr. D. B. Lees, Dr. Sidney Phillips, and Dr. A. P. Luff. Surgeons: Mr. A. J. Pepper, Mr. J. Ernest Lane, and Mr. H. Stansfield Collier. Physicians in charge of Out-Patients: Dr. H. A. Caley, Dr. Wilfred Harris, and Dr. John Broadbent. Surgeons in Charge of Out-Patients: Mr. V. Warren Low, Mr. W. H. Clayton-Greene, and Mr. Maynard Smith. Physician-Accoucheur: Dr. Montagu Handfield-Jones. Physician-Accoucheur in charge of Out-Patients: Dr. W. J. Gow. Physician in charge of Children's Department: Dr. Sidney Phillips. Ophthalmic Surgeon: Mr. H. E. Juler. Assistant Ophthalmic Surgeon: Mr. Leslie Paton. Physician to the Skin Department: Dr. Graham Little. Dental Surgeon: Mr. Morton Smale. Aural Surgeon: Dr. G. William Hill. Surgeon to the Throat Department: Dr. Scanes Spicer. Administrators of Anæsthetics: Mr. Henry Davis, Mr. Blumfeld, and Mr. Collum. Director in Medical Charge of Inoculation Department: Sir A. E. Wright. Dean: Dr. H. A. Caley.

Lecturers.—Clinical Medicine: Dr. D. B. Lees. Clinical Surgery: Mr. A. J. Pepper. Medicine: Dr. Sidney Phillips. Surgery: Mr. J. Ernest Lane and Mr. H. Stansfield Collier. Practical and Operative Surgery: Mr. H. Stansfield Collier and Mr. V. W. Low. Pathology: Sir A. E. Wright. Bacteriology: Sir A. E. Wright. Pathological Chemistry: Dr. W. H. Willcox. Midwifery and Gynæcology: Dr. M. Handfield-Jones. Materia Medica and Therapeutics: Dr. H. A. Caley. Forensic Medicine: Dr. A. P. Luff and Dr. Willcox. Descriptive and Surgical Anatomy: Mr. W. H. Clayton-Greene. Physiology and Histology: Dr. N. H. Alcock. Demonstrator: Dr. B. J. Collingwood. Biology: Dr. W. G. Ridewood. Demonstrator: Mr. H. B. Fantham. Chemistry: Dr. G. Senter. Physics: Mr. W. H. White. Hygiene and Public Health: Dr. W. H. Willcox. Mental Diseases: Dr. Theo. B. Hyslop. Diseases of the Eye: Mr. Leslie Paton. Diseases of the Ear: Dr. G. William Hill. Diseases of the Skin: Dr. Graham Little. Diseases of the Throat: Dr. Scanes Spicer. Dental Surgery: Mr. Morton Smale. Medical Tutor: Dr. W. J. Harris. Surgical Tutor: Mr. V. Warren Low. Obstetric Tutor: Dr. T. G. Stevens. Medical Registrar: Dr. F. S. Langmead. Surgical Registrar: Mr. C. I. Graham. Electrical Department: Dr. W. J. Harris. Curator of the Museum: Dr. B. H. Spilsbury. Anatomy: Mr. W. Ashdowne (senior demonstrator). Practical Pharmacy: Mr. E. A. Andrews (demonstrator). School Secretary: Mr. B. E. Matthews.

MIDDLESEX HOSPITAL.—The hospital contains 340 beds. There is a special wing for patients suffering from cancer, consisting of four wards, containing 40 beds; here cancer patients are received and attended for a period limited only by the duration of their disease.

Hospital Appointments.—All hospital appointments are allotted to students without any extra fee. Eighteen Resident Appointments are annually filled from the pupils of the hospital, each appointment extending over six months.

Special Classes are held to prepare students for the Inter. M.B. (Lond.) Examination and for the Primary Examination for the diploma of F.R.C.S. Eng.

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects included in the examinations in Medicine and Surgery in the United Kingdom and for the diploma in Public Health; and ample laboratory and class-room accommodation is provided for the teaching of the various subjects of the curriculum and for original research in Medicine, Pathology, or Bacteriology.

A Residential College to accommodate a limited number of students adjoins the hospital. Breakfast, luncheon, and dinner are supplied in the College Hall at a very moderate charge.

Fees.—The Composition Fee for the entire curriculum is 135 guineas, or 145 guineas if paid in three instalments. The fee for London University students is 145 guineas; for those who have passed the Preliminary Scientific 120 guineas. The fee for the Dental Curriculum is 54 guineas, or 60 guineas if paid in two instalments. Students who have completed the study of Anatomy and Physiology or passed the London Preliminary Scientific M.B. Examination are received on special terms.

Staff.—Consulting Physicians: Dr. W. Cayley, Dr. Sydney Coupland, and Sir Richard Douglas Powell. Physicians: Dr. J. K. Fowler, Dr. W. Pasteur, and Dr. W. E. Wynter. Obstetric Physician: Dr. W. Duncan. Physician to Out-patients. Dr. A. F. Voelcker. Assistant Physicians: Dr. F. J. Wethered, Dr. H. Campbell Thompson, and Dr. R. A. Young. Consulting Physician to the Skin Department: Dr. J. J. R. Liveing. Physician to the Skin Department: Dr. Comyns Pringle. Assistant Obstetric Physician: Dr. Comyns Berkeley. Consulting Surgeons: Mr. Nunn and Mr. Morris. Surgeons: Mr. Clark, Mr. Gould, and Mr. Bland-Sutton. Surgeons to Out-patients: Mr. Murray (Dean of the school) and Mr. Kellock. Assistant Surgeon: Mr. Handley. Ophthalmic Surgeon: Mr. W. Lang. Aural Surgeon: Mr. S. Paget. Dental Surgeon: Mr. W. Hern. Assistant Dental Surgeon: Mr. Nowell. Curator of the Museum and Pathologist: Dr. Lakin. Registrars: Dr. O. K. Williamson, Mr. Hastings, and Dr. Victor Bonney. Resident Medical Officer: Mr. E. A. Fardon. Chloroformists: Mr. Norton, Mr. T. G. A. Burns, and Mr. H. P. Noble.

Lecturers.—Winter Session: Anatomy: Dr. Wright. Demonstrator: Dr. Gladstone. Biology and Physiology: Mr. Goodall. Demonstrator: Mr. Earle. Chemistry: Dr. Kellas. Medicine: Dr. Pasteur and Dr. Wynter. Practical Medicine: Dr. Voelcker. Emeritus Lecturer in Surgery: Mr. Henry Morris. Surgery: Mr. Clark, Mr. Pearce Gould, and Mr. Bland-Sutton. Practical Surgery: Mr. Murray. Operative Surgery: Mr. Murray. Practical Midwifery: Dr. Bonney. Pathology: Dr. Voelcker. Forensic Medicine and Toxicology: Dr. Wethered. Clinical Lectures in Medicine: The Physicians. Clinical Lectures instruction in Anatomy, Physiology, and Practical Pharmacology are provided for students preparing for the Intermediate M.B. Examination of the University of London. The rebuilding of the School is now completed and the new buildings afford every facility for efficiency of teaching and of practical work in all departments.

Staff.—Consulting Physicians: Dr. S. West and Dr. T. Crawfurd Hayes. Physicians: Dr. Harrington Sainsbury, Dr. J. W. Carr, and Dr. R. H. P. Crawfurd. Assistant Physicians: Dr. A. G. Phear and Dr. Farquhar Buzzard. Consulting Surgeons: Mr. T. H. Wakley, Mr. W. Rose, and Mr. A. B. Barrow. Surgeons: Mr. J. Berry, Mr. E. W. Roughton, and Mr. W. H. Evans. Assistant Surgeons: Mr. T. Percy Legg and Mr. Cunning. Physician for Diseases of Women: Mrs. Scharlieb, M.S., M.D. Assistant Physician for the Diseases of Women: Miss Vaughan, M.D. Ophthalmic Surgeon: Mr. H. Work Dodd. Surgeon for Diseases of Throat, Nose, and Ear: Mr. E. W. Roughton. Surgeon for Diseases of Skin: Mr. W. H. Evans. Senior Resident Medical Officer: Mr. Atkey. Registrars: Miss Roberts, M.D., B.S., and Miss Ivens, M.S., M.B. Dentist: Mr. F. Todd. Anæsthetists: Mrs. Berry, M.D., B S., and Mrs. Willey, M.S., M.D. Secretary: Mr. C. W. Thies.

Lecturers.—At the school: Anatomy and Practical Anatomy: Mr. Parsons. Physiology and Practical Physiology: Dr. Brodie and Miss Cullis. Chemistry: Miss C. de B. Evans, D.Sc. *Practical Chemistry*: Miss Widdows, B.Sc. Physics: Miss E. Stoney. Biology: Mr. Mudge. Materia Medica: Dr. R. H. P. Crawfurd. Practice of Medicine: Miss Cock, M.D., and Dr. J. W. Carr. Midwifery: Mrs. Scharlieb, M.S. Gynæcology: Mrs. Stanley Boyd. Forensic Medicine: Dr. Hawthorne. Toxicology: Dr. Wilson Hake. Practice of Surgery: Mr. Berry. Operative Surgery: Mr. Roughton. Ophthalmic Surgery: Miss Ellaby. Pathology: Dr. F. W. Andrewes. Mental Pathology: Dr. Mercier. Tropical Diseases: Sir Patrick Manson. Operative Midwifery: Miss McCall, M.D., and Miss Vaughan, M.D. Demonstrator of Practical Gynæcology, Miss Vaughan, M.D.; of Anatomy, Miss Hamilton, M.D., and Miss Seaton-Smith, M.B.; of Chemistry, Miss Laycock, B.Sc.; of Practical Pharmacology, Mrs. Clarke Keer. At the Royal Free Hospital: Clinical Medicine: Dr. Sainsbury and Dr. Carr. Clinical Surgery: Mr. Berry and Mr. Roughton. Clinical Obstetrics: Mrs. Scharlieb, M.S. Pathology: Dr. Phear. Bacteriology: Mr. Roughton. Surgical Tutors: Mr. W. Evans, Mr. Legg, and Mr. Cunning. Medical Tutor: Dr. Crawfurd. Demonstrator of Auscultation: Dr. Phear. Demonstrator of Practical Clinical Medicine: Miss Woodcock, M.D. Practical Pathology: Miss Ivens, M.S.

Dean of the School, Miss Cock, M.D.; Honorary Secretary, Mrs. Thorne; Secretary, Miss Douie, M.B.

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

BETHLEM ROYAL HOSPITAL.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They will be permitted to reside in the hospital for a term generally not exceeding six months, commencing July 1st and Jan. 1st, and will be provided with apartments, complete board, attendance, washing, and an honorarium of 25 guineas per quarter. They will be under the direction of the Resident Physician and will be elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners may attend for a period of three months on payment of a fee of £3 3*s*. Lectures are also given in connexion with the London Post-graduate Course.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton (318 beds).—Four House Physicians reside in the hospital for a period of six months. Pupils are admitted to the practice of the hospital: terms, £1 1*s*. for one month; three months, £2 2*s*.; perpetual, £5 5*s*. Lectures and Clinical Demonstrations are given throughout the year by members of the medical staff. The next course will commence in October. Clinical Assistants are appointed to the Assistant Physician in the out-patient department and Clinical Clerks to the Physician in the wards. The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work. The medical practice of the hospital is also recognised by the University of London, the Apothecaries' Society, and the Army and Navy and Indian Medical Boards. The hospital contains 318 beds in the two buildings.

Staff.—Consulting Physicians: Dr. J. E. Pollock, Dr. E. S. Thompson, Sir Richard Douglas Powell, Dr. F. T. Roberts, Dr. C. T. Williams, Dr. J. M. Bruce, Dr. T. H. Green, Dr. J. K. Fowler, Dr. T. D. Acland, and Dr. P. Kidd. Physicians: Dr. R. Maguire, Dr. H. W. G. Mackenzie, Dr. S. H. Habershon, Dr. G. Schorstein, and Dr. F. J. Wethered. Assistant Physicians: Dr. P. Horton-Smith Hartley, Dr. J. J. Perkins, Dr. A. Latham, Dr. H. Batty Shaw, Dr. W. C. Bosanquet, and Dr. R. A. Young. Consulting Surgeons: Lord Lister and Mr. R. J. Godlee. Surgeon: Mr. S. Boyd. Dental Surgeon: Mr. G. L. Bates. Resident Medical Officer: Dr. F. C. Shrubsall.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park.—During the past year 1143 in-patients have been treated in the wards, and the large number of 38,290 cases since the opening of the wards in 1855. The number of out-patients treated during 1905 was 17,124 and 706,787 since the commencement of the institution in 1848. Information as to medical instruction can be obtained on application to Dr. E. Clifford Beale, the Secretary of the Clinical Sub-committee at the hospital.

Staff.—Consulting Physicians: Dr. J. C. Thorowgood, Dr. Eustace Smith, Dr. Vincent D. Harris, Sir William S. Church, Bart., K.C.B., M.D., F.R.C.P., and Dr. E. Clifford Beale. Consulting Surgeon: Lord Lister. Physicians: Dr. G. A. Heron, Dr. Harrington Sainsbury, Dr. T. Glover Lyon, Sir Hugh Beevor, Bart., Dr. W. J. Hadley, Dr. E. H. Colbeck, and Dr. Arnold Chaplin. Surgeon: Mr. J. F. C. H. Macready, F.R.C.S. Physicians to Out-patients: Dr. Hugh Walsham, Dr. Oliver K. Williamson, Dr. Clive-Riviere, Dr. O. F. F. Grünbaum, Dr. R. Fielding-Ould, and Dr. A. I. Simey. Surgeon Dentist: Mr. Evelyn C. Sprawson, M.R.C.S., L.R.C.P. Secretary: Henry T. Dudley Ryder. Secretary of the Medical Committee: Dr. Clive Riviere.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—In addition to the new In-patient Department, and operation theatre the hospital has a very extensive out-patient department, which is open to all medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons' visits. During the past year 10,052 out-patients (involving over 50,000 attendances) and 354 in-patients were treated. The fee for three months' attendance, 3 guineas; for six months, 5 guineas. The post-graduate teaching consists of successive series of practical demonstrations by the members of the staff delivered once weekly during the winter and summer sessions. They are so arranged that practitioners joining at any part of the course are enabled to complete the group of subjects. The fee for each course is one guinea, or with daily attendance at the out-patient department during the period of the course two guineas. Details of subjects &c., will be afforded by the Dean. Considerable attention is given to scientific work, particularly with regard to Bacteriology of the ear and respiratory passages. Operation days: in-patients, Tuesday and Friday, at 2 P.M.; out-patients, daily at 9 A.M. Consulting Physician: Dr. Arthur Orwin. Consulting Surgeon: Mr. Thomas Nunn. Surgeons: Dr. Dundas Grant, Dr. Percy Jakins, Mr. Chichele Nourse, and Dr. Abercrombie. Assistant Surgeons: Mr. Stuart Low, Dr. Andrew Wylie, and Mr. Atkinson. Pathologist: Dr. Wyatt Wingrave. Bacteriologist: Mr. St. George Reid. Dental Surgeon: Mr. Whishaw Wallis. Anæsthetist: Mr. W. Hotten George. Assistant Anæsthetist: Mr. A. B. Kingsford. Defects of Speech: Mr. William Van Praagh. In addition the following appointments are open to qualified members of the profession:—Three Registrars, tenable for twelve months; and twelve Clinical Assistants, tenable for six months. Secretary: Mr. Richard Kershaw. Dean: Dr. Wyatt Wingrave.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Clinical Demonstrations on the Diseases of the Throat, Nose, and Ear are given daily at 2 P.M. and on Tuesday and Friday evenings at 6 P.M. Operations are performed almost daily at 9.30 A.M. Individual instruction is given in the examination of cases to students attending the hospital. Fees: one month's attendance, £1 1*s*.; three months, £2 2*s*.; perpetual, £5 5*s*. Detailed information may be obtained from the Hon. Secretary of the Medical Committee.

assistants for three months, receiving free board and lodging.

Several gentlemen connected with the College receive students to reside with them. A register of boarding residences is kept in the office of the College for the convenience of students; the residences are not under the control of the College authorities.

Staff.—Consulting Physicians: Dr. H. C. Bastian, Dr. S. Ringer, Sir W. R. Gowers, Sir J. Williams, Bart., and Dr. F. T. Roberts. Physicians: Sir Thomas Barlow, Bart., Dr. J. Rose Bradford, Dr. Sidney Martin, and Dr. J. Risien Russell. Assistant Physicians: Dr. H. Batty Shaw, Dr. F. J. Poynton, and Dr. C. Bolton. Obstetric Physicians: Dr. H. R. Spencer and Dr. G. F. Blacker. Physician, Skin Department: Dr. H. Radcliffe Crocker. Consulting Surgeon: Mr. John Tweedy (Ophthalmic). Surgeons: Mr. A. E. Barker, Mr. R. J. Godlee, Sir Victor Horsley, Mr. Bilton Pollard, and Mr. Raymond Johnson. Assistant Surgeon: Mr. Rupert Bucknall. Ophthalmic Surgeon: Mr. Percy Flemming. Assistant Ophthalmic Surgeon: Mr. J. H. Parsons. Professor and Lecturer on Public Health: Dr. Henry R. Kenwood. Dental Surgeon: Mr. Sidney Spokes. Assistant Dental Surgeon: Mr. H J. Relph. Anæsthetist: Dr. Dudley Buxton. Assistant Anæsthetists: Dr. H. J. Scharlieb and Mr. A. Beresford Kingsford. Surgical Registrar: Mr. P. M. Heath. Resident Medical Officer: Dr. A. M. H. Gray. Pathologist: Dr. F. H. Thiele. Electrotherapeutist: Mr. E. S. Worrall. Radiographer: Mr. R. H. Cooper. Pharmacist: Mr. R. R. Bennett.

The new buildings for University College Hospital, completed by the generosity of the late Sir Blundell Maple, Bart., are now completed and will be opened by H.R.H. the Duke of Connaught on Tuesday, Nov. 6th, 1906.

The new buildings for the Medical School, now in course of erection through the generosity of Sir Donald Currie, will be ready shortly and will contain accommodation for undergraduate and post-graduate students in all departments of medical study subsequent to the intermediate course.

WESTMINSTER HOSPITAL.—The hospital contains upwards of 200 beds. There are separate departments for Diseases of the Eye, Ear, Skin, Teeth, and Throat, for Orthopædics, and for Diseases of Women, and a special ward for children. The Anatomical, Pathological, and Materia Medica Museums are open to all students of the school.

A medical and a surgical registrar, each with a salary of £50, are appointed annually. Two house physicians, three house surgeons, and a resident obstetric assistant are appointed for six months after examination, and are provided with rooms and commons; also one assistant house physician and one assistant house surgeon with commons only. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students of the hospital.

By a scheme for the concentration of the teaching of the preliminary and intermediate subjects of the curriculum, which has the support of the London University, an arrangement has been made by the Westminster school for the teaching of these subjects at King's College. Students, however, join the Westminster Medical School as formerly and the Entrance Scholarships remain as heretofore.

D.P.H.—The course of Laboratory Instruction may now be taken. Physics, Mr. Fox; Chemistry, Dr. Hake; Bacteriology, Dr. Bernstein. Fee: seven guineas for three months, 13 guineas for six months.

Bacteriology.—A course in General Bacteriology is given by Dr. Bernstein. Fee £5 5s.

Staff.—Consulting Medical Staff: Dr. H. B. Donkin and Dr. W. H. Allchin. Consulting Surgical Staff: Mr. Richard Davy, Mr. G. Cowell, and Mr. N. C. Macnamara. Consulting Dental Surgeon: Dr. J. Walker. Medical In-patient Staff: Dr. de Havilland Hall, Dr. W. Murrell, and Dr. R. G. Hebb. Obstetric Physician: Dr. W. Rivers Pollock. Surgical In-patient Staff: Mr. C. Stonham, Mr. W. G. Spencer, and Mr. A. H. Tubby. Medical Out-patient Staff: Dr. A. M. Gossage, Dr. Purves Stewart, Dr. Bertram Abrahams, and Dr. Eric Macnamara. Physician for Diseases of the Skin: Dr. T. Colcott Fox. Assistant Obstetric Physician: Dr. G. H. Drummond Robinson. Surgical Out-patient Staff: Mr. W. Turner, Mr. E. P. Paton, Mr. Arthur Evans, and Mr. Rock Carling. Surgeon in Charge of the Throat Department: Mr. P. R. W. De Santi. Ophthalmic Surgeon: Mr. G. Hartridge. Surgeon in charge of the Orthopædic Department: Mr. A. H. Tubby. Surgeon in charge of the Ear Department: Mr. P. R. W. De Santi. Dental Surgeons: Mr. C. W. Glassington and Mr. E. Gardner. Administrators of Anæsthetics: Dr. N. W. Bourns and Dr. V. B. Orr. Assistant Anæsthetist: Dr. Cecil Hughes. Physician Pathologist: Dr. R. G. Hebb. Assistant Pathologist and Curator of Museum: Dr. J. M. Bernstein. Medical Registrar: Dr. Price. Surgical Registrar: Mr. J. M. G. Swainson. Pharmacist: Mr. A. E. Tanner. Secretary: Mr. S. M. Quennell.

Lecturers.—Clinical Medicine: Dr. Hall, Dr. Murrell, and Dr. Hebb. Clinical Surgery: Mr. Stonham, Mr. Spencer, and Mr. Tubby. Clinical Gynæcology: Dr. Pollock (treasurer of the school). Medicine: Dr. Allchin, Dr. Murrell, Dr. Hebb, Dr. Gossage, Dr. Purves Stewart, Dr. Abrahams, Dr. Macnamara, and Dr. Duncan. Diseases of the Skin: Dr. Colcott Fox. Insanity: Dr. Robert Jones. Surgery: Mr. Spencer. Ophthalmic Surgery: Mr. Hartridge. Surgery of the Throat and Nose: Mr. De Santi. Orthopædic Surgery: Mr. Tubby. Aural Surgery: Mr. De Santi. Dental Surgery: Mr. Glassington. Anæsthetics: Dr. Bourns. Operative Surgery: Mr. Stonham. Surgical Anatomy: Mr. Arthur Evans. Practical Surgery: Mr. Turner and Mr. Rock Carling. Surgical Pathology: Mr. Paton (Dean of the school). Midwifery and Diseases of Women: Dr. Pollock. General Pathology and Morbid Anatomy: Dr. Hebb. Post-mortem Demonstrations: Dr. Hebb. Materia Medica, Therapeutics, and Pharmacology: Dr. Dixon. Demonstrator of Practical Pharmacy: Mr. A. E. Tanner. Forensic Medicine: Mr. Henslowe Wellington. Toxicology: Dr. H. Wilson Hake. Public Health: Dr. S. Monckton Copeman. Bacteriology: Dr. Bernstein. Anatomy: Dr. Thompson and Mr. Jenkins. Demonstrator of Practical Anatomy: Mr. Jenkins. Physiology: Dr. Halliburton. Practical Physiology and Histology: Dr. Halliburton, Dr. Lyle, Dr. Myers, and Dr. Rosenheim. Biology: Dr. Bottomley and Mr. Schwartz. Chemistry and Practical Chemistry: Dr. Thomson, Mr. Jackson, and Mr. Kirkaldy. Physics: Dr. Wilson, Dr. Harrison, and Mr. Allen. Secretary and Librarian: Mr. W. Fryer.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, Brunswick-square, W.C.—The fee for the medical course for the University of London, after the completion of the Preliminary Scientific year, is £135 in one sum, or £145 in four instalments. The fee for the Preliminary Science classes is £25. The fee for the course for the University of Durham, the Society of Apothecaries, and the Conjoint Colleges of Scotland, including Elementary Science, is £140 in one sum, or £150 in four instalments. This entitles students to attend all necessary lectures and practical classes as well as the medical and surgical practice of the hospital, and to hold clerkships and dresserships in the in-patient and out-patient departments. Students can also attend the in-patient and out-patient practice of the New Hospital for Women. Students after qualification can hold at the Royal Free Hospital the posts of house physician, house surgeon, clinical assistants, anæsthetist and assistant anæsthetists, medical and surgical registrars, medical electrician, and museum curator; and at the Medical School the posts of demonstrators in the departments of Anatomy, Physiology, Chemistry, and museum curator. They can also hold posts at the New Hospital for Women, which is officered entirely by medical women.

In addition to the list of Scholarships tabulated in another column three Evans Prizes of £3 3s., £2 2s., and £1 1s. are given in alternate years on the results of the class examination in midwifery, and two Durham Prizes, value £5 and £3, are given in alternate years on the results of the class examination in gynæcology, and a prize of £5 is awarded in alternate years on the results of the class examination in Midwifery and Gynæcology respectively. The Evans Prize for Operative Midwifery, value £5 5s., is awarded yearly. Prizes of £10 each are awarded yearly in Anatomy and Physiology. There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help. Honoraria from the Mary Royce Memorial Fund are given to the assistant anæsthetists at the Royal Free Hospital. Prizes and Certificates of Honour are awarded in each class at the end of the session.

Special classes for the Preliminary Scientific examination of the University of London are held and special courses of instruction in Anatomy, Physiology, and Practical Pharmacology are provided for students preparing for the Intermediate M.B. Examination of the University of London. The rebuilding of the School is now completed and the new buildings afford every facility for efficiency of teaching and of practical work in all departments.

Staff.—Consulting Physicians: Dr. S. West and Dr. T. Crawfurd Hayes. Physicians: Dr. Harrington Sainsbury, Dr. J. W. Carr, and Dr. R. H. P. Crawfurd. Assistant Physicians: Dr. A. G. Phear and Dr. Farquhar Buzzard. Consulting Surgeons: Mr. T. H. Wakley, Mr. W. Rose, and Mr. A. B. Barrow. Surgeons: Mr. J. Berry, Mr. E. W. Roughton, and Mr. W. H. Evans. Assistant Surgeons: Mr. T. Percy Legg and Mr. Cunning. Physician for Diseases of Women: Mrs. Scharlieb, M.S., M.D. Assistant Physician for the Diseases of Women: Miss Vaughan, M.D. Ophthalmic Surgeon: Mr. H. Work Dodd. Surgeon for Diseases of Throat, Nose, and Ear: Mr. E. W. Roughton. Surgeon for Diseases of Skin: Mr. W. H. Evans. Senior Resident Medical Officer: Mr. Atkey. Registrars: Miss Roberts, M.D., B.S., and Miss Ivens, M.S., M.B. Dentist: Mr. F. Todd. Anæsthetists: Mrs. Berry, M.D., B S., and Mrs. Willey, M.S., M.D. Secretary: Mr. C. W. Thies.

Lecturers.—At the school: Anatomy and Practical Anatomy: Mr. Parsons. Physiology and Practical Physiology: Dr. Brodie and Miss Cullis. Chemistry: Miss C. de B. Evans, D.Sc. Practical Chemistry: Miss Widdows, B.Sc. Physics: Miss E. Stoney. Biology: Mr. Mudge. Materia Medica: Dr. R. H. P. Crawfurd. Practice of Medicine: Miss Cock, M.D., and Dr. J. W. Carr. Midwifery: Mrs. Scharlieb, M.S. Gynæcology: Mrs. Stanley Boyd. Forensic Medicine: Dr. Hawthorne. Toxicology: Dr. Wilson Hake. Practice of Surgery: Mr. Berry. Operative Surgery: Mr. Roughton. Ophthalmic Surgery: Miss Ellaby. Pathology: Dr. F. W. Andrewes. Mental Pathology: Dr. Mercier. Tropical Diseases: Sir Patrick Manson. Operative Midwifery: Miss McCall, M.D., and Miss Vaughan, M.D. Demonstrator of Practical Gynæcology, Miss Vaughan, M.D.; of Anatomy, Miss Hamilton, M.D., and Miss Seaton-Smith, M.B.; of Chemistry, Miss Laycock, B.Sc.; of Practical Pharmacology, Mrs. Clarke Keer. *At the Royal Free Hospital*: Clinical Medicine: Dr. Sainsbury and Dr. Carr. Clinical Surgery: Mr. Berry and Mr. Roughton. Clinical Obstetrics: Mrs. Scharlieb, M.S. Pathology: Dr. Phear. Bacteriology: Mr. Roughton. Surgical Tutors: Mr. W. Evans, Mr. Legg, and Mr. Cunning. Medical Tutor: Dr. Crawfurd. Demonstrator of Auscultation: Dr. Phear. Demonstrator of Practical Clinical Medicine: Miss Woodcock, M.D. Practical Pathology: Miss Ivens, M.S.

Dean of the School, Miss Cock, M.D.; *Honorary* Secretary, Mrs. Thorne; Secretary, Miss Donie, M.B.

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

BETHLEM ROYAL HOSPITAL.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They will be permitted to reside in the hospital for a term generally not exceeding six *months*, commencing July 1st and Jan. 1st, and will be provided with apartments, complete board, attendance, washing, and an honorarium of 25 guineas per quarter. They will be under the direction of the Resident Physician and will be elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners may attend for a period of three months on payment of a fee of £3 3s. Lectures are also given in connexion with the London Post-graduate Course.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton (318 beds).—Four House Physicians reside in the hospital for a period of six months. Pupils are admitted to the practice of the hospital: terms, £1 1s. for one month; three months, £2 2s.; perpetual, £5 5s. Lectures and Clinical Demonstrations are given throughout the year by members of the medical staff. The next course will commence in October. Clinical Assistants are appointed to the Assistant Physician in the out-patient department and Clinical Clerks to the Physician in the wards. The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work. The medical practice of the hospital is also recognised by the University of London, the Apothecaries' Society, and the Army and Navy and Indian Medical Boards. The hospital contains 318 beds in the two buildings.

Staff.—Consulting Physicians: Dr. J. E. Pollock, Dr. E. S. Thompson, Sir Richard Douglas Powell, Dr. F. T. Roberts, Dr. C. T. Williams, Dr. J. M. Bruce, Dr. T. H. Green, Dr. J. K. Fowler, Dr. T. D. Acland, and Dr. P. Kidd. Physicians: Dr. R. Maguire, Dr. H. W. G. Mackenzie, Dr. S. H. Habershon, Dr. G. Schorstein, and Dr. F. J. Wethered. Assistant Physicians: Dr. P. Horton-Smith Hartley, Dr. J. J. Perkins, Dr. A. Latham, Dr. H. Batty Shaw, Dr. W. C. Bosanquet, and Dr. R. A. Young. Consulting Surgeons: Lord Lister and Mr. R. J. Godlee. Surgeon: Mr. S. Boyd. Dental Surgeon: Mr. G. L. Bates. Resident Medical Officer: Dr. F. C. Shrubsall.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park.—During the past year 1143 in-patients have been treated in the wards, and the large number of 38,290 cases since the opening of the wards in 1855. The number of out-patients treated during 1905 was 17,134 and 706,787 since the commencement of the institution in 1848. Information as to medical instruction can be obtained on application to Dr. E. Clifford Beale, the Secretary of the Clinical Sub-committee at the hospital.

Staff.—Consulting Physicians: Dr. J. C. Thorowgood, Dr. Eustace Smith, Dr. Vincent D. Harris, Sir William S. Church, Bart., K.C.B., M.D., F.R.C.P., and Dr. E. Clifford Beale. Consulting Surgeon: Lord Lister. Physicians: Dr. G. A. Heron, Dr. Harrington Sainsbury, Dr. T. Glover Lyon, Sir Hugh Beevor, Bart., Dr. W. J. Hadley, Dr. E. H. Colbeck, and Dr. Arnold Chaplin. Surgeon: Mr. J. F. C. H. Macready, F.R.C.S. Physicians to Out-patients: Dr. Hugh Walsham, Dr. Oliver K. Williamson, Dr. Clive Riviere, Dr. O. F. F. Grünbaum, Dr. R. Fielding-Ould, and Dr. A. I. Simey. Surgeon Dentist: Mr. Evelyn C. Sprawson, M.R.C.S, L.R.C.P. Secretary: Henry T. Dudley Ryder. Secretary of the Medical Committee: Dr. Clive Riviere.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—In addition to the new In-patient Department, and operation theatre the hospital has a very extensive out-patient department, which is open to all medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons' visits. During the past year 10,052 out-patients (involving over 50,000 attendances) and 354 in-patients were treated. The fee for three months' attendance, 3 guineas; for six months, 5 guineas. The post-graduate teaching consists of successive series of practical demonstrations by the members of the staff delivered once weekly during the winter and summer sessions. They are so arranged that practitioners joining at any part of the course are enabled to complete the group of subjects. The fee for each *course* is one guinea, or with daily attendance at the out-patient department during the period of the course two guineas. Details of subjects &c., will be afforded by the Dean. Considerable attention is given to scientific work, particularly with regard to Bacteriology of the ear and respiratory passages. Operation days: in-patients, Tuesday and Friday, at 2 P.M.; out-patients, daily at 9 A.M. Consulting *Physician*: Dr. Arthur Orwin. Consulting Surgeon: Mr. Thomas Nunn. Surgeons: Dr. Dundas Grant, Dr. Percy Jakins, Mr. Chichele Nourse, and Dr. Abercrombie. Assistant Surgeons: Mr. Stuart Low, Dr. Andrew Wylie, and Mr. Atkinson. Pathologist: Dr. Wyatt Wingrave. Bacteriologist: Mr. St. George Reid. Dental Surgeon: Mr. Whishaw Wallis. Anæsthetist: Mr. W. Hotten George. Assistant Anæsthetist: Mr. A. B. Kingsford. Defects of Speech: Mr. William Van Praagh. In addition the following appointments are open to qualified members of the profession:—Three Registrars, tenable for twelve months; and twelve Clinical Assistants, tenable for six months. Secretary: Mr. Richard Kershaw. Dean: Dr. Wyatt Wingrave.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Clinical Demonstrations on the Diseases of the Throat, Nose, and Ear are given daily at 2 P.M. and on Tuesday and Friday evenings at 6 P.M. Operations are performed almost daily at 9.30 A.M. Individual instruction is given in the examination of cases to students attending the hospital. Fees: one month's attendance, £1 1s.; three months, £2 2s.; perpetual, £5 5s. Detailed information may be obtained from the Hon. Secretary of the Medical Committee.

THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.—The hospital was founded in 1838 and is situated in Grafton-street, Tottenham-court-road. The out-patient department is opened daily at 2.30 P.M. to all medical practitioners and senior students for acquiring clinical instruction and technical knowledge. Operations upon in-patients are performed on Tuesdays, Wednesdays, and Thursdays at 9 A.M. Fee for one month's attendance at the hospital £1 1*s.*, and for three months £2 2*s.* During the forthcoming session practical demonstrations will be given by members of the staff on the diagnosis and treatment of diseases of the ear and respiratory passages. Each course may commence at any time.

THE HOSPITAL FOR WOMEN, Soho-square, W.—*Staff:* Consulting Physicians: Dr. Carter and Dr. Holland. Consulting Surgeon: Mr. Reeves. Consulting Surgeon Dentist: Mr. Canton. Gynæcologists: Dr. Richard Smith, Dr. Mansell-Moullin, Dr. Bedford Fenwick (in charge of out-patients), Dr. James Oliver, Dr. Dauber, and Dr. Stevens. Assistant Gynæcologist: Dr. Simson. Surgeon: Mr. Drew. Assistant Surgeon: Mr. McGavin. Surgeon Dentist: Mr. May. Anæsthetists: Mr. O. J. Ogle and Dr. M. Horne. Pathologist: Dr. Aarons. Registrar, Dr. Milligan. House Physician: Dr. Aubrey. In connexion with the out-patient department there has been for some years a well-organised Clinical Department. To meet the want increasingly felt by medical men of a more accurate knowledge of the diseases peculiar to women and of more extended opportunities for examining gynæcological cases gentlemen are appointed to act as clinical assistants to the gynæcologists to out-patients. The appointments are open to qualified medical men. The hospital contains 60 beds. In the out-patient department there were over 4000 new cases during the past year, the total number of out-patient attendances being 15,778 This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women. Clinical assistants are entitled to receive notice of all operations performed within the hospital, and every facility is afforded them by the gynæcologists in the out-patient department of obtaining experience in diagnosis and treatment and the practical use of instruments. Fee for one month £3 3*s.*; for each subsequent month £2 10*s.* 6*d.* A certificate is given at the end of a three months' course. Applications should be made to the Dean.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road. (80 beds.)—This hospital provides accommodation for 80 in-patients. Expenditure for 1905 £6500; income (including legacies, £1520), £6165. The attendance of out-patients averages 27,000 annually.

Staff.—Consulting Physicians: Dr. Horace Dobell, Dr. P. J. Hensley, and Professor D. W. Finlay. Physicians: Dr. W. H. White, Dr. Oswald Browne, Dr. A. Davies, Dr. J. Calvert, Dr. M. Leslie, and Dr. J. H. Drysdale. Assistant Physicians: Dr. A. G. Phear, Dr. H. E. Symes Thompson, and Dr. J. Graham Forbes. Consulting Surgeons: Mr. J. Hutchinson and Mr. Pearce Gould. Surgeon: Mr. W. Turner. Resident Medical Officer: Dr. P. A. Dingle. House Physician: Dr. A. S. Hosford. Secretary: Mr. A. T. Mays.

ROYAL EAR HOSPITAL, Dean-street, Soho. (Founded 1816.)—Courses of instruction of a practical character in Diseases of the Ear and Nose are given by the members of the staff throughout the year. Clinical assistants are also appointed. The new hospital is now in full working order. Students may join at any time. For information address the Honorary Secretary of the Medical Board, Mr. T. H. Chaldecott.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N. —Consulting Physicians: Sir S. Wilks, Bart., and Dr. R. Barnet. Consulting Surgeon: Mr. J. F. Macready. Physicians: Dr. E. C. Beale, Dr. C. E. Beevor, Dr. H. W. Syers, Dr. A. Morison, Dr. T. J. Horder, and Dr. Symes Thompson. Obstetric Physicians: Dr. G. F. Blacker and Dr. R. H. Bell. Physician for Skin: Dr. A. Whitfield. Surgeons: Mr. P. T. B. Beale, Mr. G. B. M. White, Mr. E. C. Stabb, Mr. V. W. Low, and Mr. Arthur Edmunds. Ophthalmic Surgeon: Mr. A. S. Morton. Throat and Ear Surgeons: Mr. E. B. Waggett and Mr. Frank Rose. Dental Surgeon: Mr. C. Peyton Baly. This hospital is recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the medical curriculum. Besides the Honorary Staff there are two resident House Physicians, three resident House Surgeons, four Anæsthetists, Registrar, Pathologist, and Casualty Officer. The hospital contains 162 beds which are now fully occupied. The large rectangular and circular wards, each of which contains 24 beds, the two operation theatres, general and special out-patient and pathological departments, are specially designed with a view of offering the greatest facilities for clinical work. The second operation theatre and a new surgery with observation wards are now in full working order, bringing the hospital thoroughly up to date. An electrical department is being arranged. Medical practitioners are cordially invited to see the general and special practice of the hospital. Clinical assistants (*qualified*), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office. Further particulars from Dr. T. J. Horder, honorary secretary, Medical Committee, 141, Harley-street, W.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, N.W.—Physicians for In-patients: Miss Cock, M.D., and Miss Walker, M.D. Surgeons for In-patients: Mrs. Boyd, M.D., and Miss Aldrich-Blake, M.D., M.S. Physicians and Surgeons for Out-patients: Miss Webb, M.B., Miss Macdonald, M.B., Miss Chadburn, M.D., B.S., and Miss Anderson, M.D., B.S. Children's Department: Mrs. Flemming, M.D. Ophthalmic Surgeon: Miss Sheppard, M.B. Assistant Physicians for Out-patients: Miss Woodcock, M.D., Miss Chesney, M.B., Miss Ivens, M.D., B.S., Miss Sturge, M.D., and Miss Turnbull, M.D. Senior Obstetric Assistant: Miss Turnbull, M.D Anæsthetists: Miss Browne, L.S.A., Miss Thorne, M.D., and Miss Turnbull, M.D. A considerable number of the students hold posts in the New Hospital under the visiting staff, and in return for much valued clinical teaching they do the work assigned to students in the wards of a general hospital. Secretary: Miss M. M. Bagster.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. (Established 1673).—Physicians: Dr. Fenwick, Dr. Parkinson, and Dr. Addinsell. Surgeon: Sir William J. Collins. Assistant Surgeon: Mr. H. J. Paterson. Dental Surgeon: Mr. A. Alexander. The hospital contains 110 beds. The in-patients in 1905 were 1257, and the out-patients and casualties numbered 25,071 new cases. The medical and surgical practice of the hospital is open to students and practitioners. Special departments for Ophthalmology and Gynæcology. Operations: Mondays and Thursdays, 3.30 P.M. Classes will be held during the winter and summer sessions for students preparing for the final examinations at the Colleges and the Universities. Appointments, vacancies for which are advertised in the medical journals: Medical and Surgical Registrars and Pathologist; Resident Medical Officer, Assistant Resident Medical Officer, and Assistant House Surgeon. For particulars as to hospital practice and classes apply at the hospital.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury.—The hospital, with the Finchley branch, contains 200 beds and cots. The physicians attend every Monday, Tuesday, Wednesday, and Friday at 2.30 P.M. In- and out-patient practice and electrical-room treatment at that hour. Physicians: Dr. Hughlings Jackson, Dr. Buzzard, Dr. Bastian, Sir William Gowers, Dr. D. Ferrier, Dr Ormerod, and Dr. Beevor. Physicians for Out-patients: Dr. Tooth, Dr. James Taylor, Dr. J. S. Risien Russell, and Dr. Aldren Turner. Assistant Physicians: Dr. Batten, Dr. J. S. Collier, and Dr. F. Buzzard. Surgeons: Sir Victor Horsley, Mr. C. A. Ballance, Mr. Donald J. Armour, and Mr. Percy W. G. Sargent. Ophthalmic Surgeon: Mr. Marcus Gunn. Aural Surgeon: Mr. A. E. Cumberbatch. Laryngologist: Sir Felix Semon. Gynæcologist: Dr. Walter Tate. Anæsthetist: Dr. Llewelyn Powell. Pathologist: Dr. Gordon Holmes. Registrar: Dr. C. M. H. Howell. House Physicians: Dr. S. A. K. Wilson, Dr. D. W. C. Jones, and Dr. G. Hall. The hospital is a school of the University of London and has been recognised by the Conjoint Board for England as a place where part of the fifth year may be devoted to clinical work. All communications concerning clinical appointments, lectures, and hospital practice should be addressed to the Secretary at the hospital.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—Consulting Physician: Dr. George B. Brodie. Consulting Surgeon: Mr. Alfred Willett. Physicians to In-patients: Dr. W. S. A. Griffith, Dr. W. Rivers Pollock, and Dr.

W. J. Gow. Physicians to Out-patients: Dr. T. W. Eden. Dr. C. Hubert Roberts, and Dr. Arthur F. Stabb. This hospital, which has been recently again enlarged and in which many important improvements have been carried out, receives over 1600 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly three-fourths of the total admissions. Clinical instruction is given on the more important cases which present themselves. Certificates of attendance at this hospital are recognised by all the Universities, Colleges, and licensing bodies. Pupil midwives and monthly nurses are received and specially trained. Fees: Medical Students, £8 8s. for four weeks; Qualified Medical Practitioners, £8 8s. for four weeks. Pupil Midwives (including board and lodging), £35 for five months; Pupil Nurses (including board and lodging), £24 for sixteen weeks. The new residence for students and qualified practitioners is opposite the hospital, with which it is in telephonic communication. Terms for residence and full board 35s. per week. For further particulars application should be made to Mr. Arthur Watts, Secretary, at the hospital. Students can join at any time, but preferably on the first Monday in each month.

THE SEAMEN'S HOSPITAL SOCIETY possesses two hospitals —the *Dreadnought* Hospital at Greenwich, 250 beds, and the Branch Hospital in the Royal Victoria and Albert Docks, E., 50 beds. It has also two Dispensaries—one in the East India Dock-road and the other at Gravesend—from which the patients are transferred to the hospitals. The London School of Tropical Medicine and the London School of Clinical Medicine are both under the auspices of the Seamen's Hospital Society, and information concerning these will be found upon p. 625. The medical staff administering the hospitals of the Seamen's *Hospital Society* is as follows:— Consulting Physician: R. Barnes. Visiting Physicians: Sir P. Manson, R. T. Hewlett, G. Rankin, and A. Duncan. Consulting Surgeon: W. J. Smith. Visiting Surgeons: W. Turner, J. Cantlie, L. H. McGavin, and A. Evans. Ophthalmic Surgeon: L. V. Cargill. Dental Surgeon: K. W. Goadby. Anæsthetist: K. Steele. Medical Officer East India Dock-road Dispensary: W. H. F. Oxley. Surgeon Gravesend Dispensary: C. E. Robbs. Secretary: P. Michelli.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C., contains 222 beds, divided into 95 medical, 105 surgical, and 22 for special and infectious cases, besides 33 beds at the convalescent branch, Highgate. The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum, six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need and is open to students who have completed four years of medical study and also to qualified medical men. The medical staff are recognised by the University of London as teachers in Diseases of Children. Appointments are made every three months to six medical clerkships, which are open to students of the hospital. Lectures or demonstrations are given once or twice every week during both winter and summer sessions, which qualified practitioners are invited to attend free of charge. There is a museum in connexion with the hospital. The sessions are of ten weeks' duration, and begin in October, January, and March. Fees for hospital practice, three months, 3 guineas: perpetual ticket 5 guineas. Prospectuses and further information will be forwarded on application to the Secretary at the hospital.

Staff.—Consulting Physicians: Dr. W. H. Dickinson, Dr. W. B. Cheadle, Sir Thomas Barlow, Bart., Dr. D. B. Lees, and Dr. F. G. Penrose. Physicians: Dr. A. E. Garrod, Dr. A. F. Voelcker, Dr. W. S. Colman, and Dr. F. E. Batten. Assistant Physicians: Dr. G. F. Still, Dr. F. J. Poynton, Dr. Robert Hutchison, Dr. H. Thursfield, and Dr. T. Thompson. Consulting Surgeons: Sir Thomas Smith, Bart., Mr. Howard Marsh, Mr. Edmund Owen, Mr. John Morgan, and Mr. Bernard Pitts. Surgeons: Mr. W. Arbuthnot Lane, Mr. Thomas H. Kellock, Mr. H. Stansfeld Collier, and Mr. Francis J. Steward. Assistant Surgeons: Mr. Edred M. Corner, Mr. G. E. Waugh, and Mr. H. A. T. Fairbank. Ophthalmic Surgeon: Mr. J. Herbert Parsons. Aural Surgeon: Mr. G. E. Waugh. Surgeon-Dentist: Mr. W. Warwick James. Radiographer: Dr. Ironside Bruce. Local Medical Officer for Cromwell House: Dr. A. M. Henderson. Medical Registrar: Dr. Langmead. Clinical Pathologist and Bacteriologist: Mr. Graham Forbes. Anæsthetists: Dr. R. T. Bakewell, Dr. R. W. Collum, and Mr. Graham Scott. Resident Medical Superintendent: Mr. O. L. Addison. Secretary: Mr. Stewart Johnston.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1854–1899), City-road, E.C.—133 beds. This hospital, known as Moorfields Eye Hospital, was moved in 1899 to larger buildings in City-road. In 1905 there were 2051 in-patients, the new out-patients were 42,335, and the attendances were 127,873. Operations are performed daily from 10 A.M. to 1 P.M. and four surgeons attend on each day. Students are admitted to the practice of the hospital. Fee for six months, £3 3s.; perpetual, £5 5s. *Courses of instruction on the following subjects are* given at the hospital periodically: (1) the use of the ophthalmoscope; (2) errors of refraction; (3) external diseases of the eye; (4) *surgical anatomy of the eye*; (5) pathology of the eye; (6) motor anomalies; (7) examination of the eye; (8) operative surgery: (9) x ray work; and (10) clinical lectures. A composition fee of £10 10s. will entitle students of the hospital to a perpetual ticket and will admit them once to all the above lectures and demonstrations except the classes on operative surgery and x ray work. Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants. Junior assistants are appointed every three months. Any further information will be furnished by Mr. Robert J. Bland, Secretary.

Staff.—Consulting Physician: Sir Stephen Mackenzie. Consulting Surgeons: Mr. J. Hutchinson, Mr. J. Couper, Mr. E. Nettleship, Mr. J. Tweedy, and Mr. W. Tay. Physician: Dr. J. Taylor. Surgeons: Mr. R. M. Gunn, Mr. W. Lang, Mr. J. B. Lawford, Mr. A. S. Morton, Mr. E. T. Collins, and Mr. W. T. H. Spicer. Assistant Surgeons: Mr. P. Flemming, Mr. J. H. Fisher, Mr. A. Lawson, Mr. C. D. Marshall, Mr. J. H. Parsons, and Mr. C. Worth. Medical Officer to the X Ray Department: Mr. J. M. Davidson. Curator and Librarian: Mr. G. Coats. Senior House Surgeon: Mr. E. E. R. Sawrey. Second House Surgeon: Mr. C. Goulden. Third House Surgeon: Mr. A. C. Hudson. Refraction Assistants: Mr. T. Phillips, Miss E. J. Moffett, Miss W. Thorp, and Mr. G. T. Mould.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand.—The hospital contains 40 beds. Patients, who number 11,000 annually, are seen at 1 P.M., and operations performed daily at 2 P.M. The following are the days of attendance of the *surgeons*: Mr. Hartridge and Mr. Grimsdale, Mondays and Thursdays; Mr. Roll *and* Mr. McMullen, Tuesdays and Fridays; and Mr. Dodd and Mr. Brewerton, Wednesdays and Saturdays. The practice of the hospital is open to practitioners and students. Fees for six months, £3 3s.; *perpetual*, £5 5s. Students of the hospital are eligible for the posts of house surgeon and clinical assistants. Special demonstrations and lectures will be given during the session, commencing in October; *for details* see weekly journals. Clinical Assistants (who must be duly qualified) to the Surgeons are appointed for periods of six months. Secretary: Mr. John H. Johnson.

ROYAL EYE HOSPITAL, St. George's-circus, Southwark, S.E.—There are 40 beds and 2 cots. There were 72,696 attendances in the Out-patient Department last year and the new patients numbered 25,635. Operations are performed and out-patients are seen daily at 9 A.M. and 2 P.M. The following are the days of attendance:— Afternoons: Mr. M. M. McHardy, Tuesdays and Thursdays; Sir William J. Collins, Mondays and Wednesdays; Mr. L. V. Cargill, Tuesdays and Saturdays; and Mr. R. Doyne, Mondays and Fridays. Mornings: Mr. E. Brooksbank James, Mondays and Thursdays; Mr. A. W. Ormond, Wednesdays and Saturdays; Mr. H. Willoughby Lyle, Tuesdays and Fridays. Qualified practitioners and students are admitted to the practice of the hospital upon the recommendation of the medical staff. Courses of instruction in Ophthalmology will be given during October, November, and December, 1906. Lectures will be delivered on Monday, Wednesday, and Friday evenings at 8 P.M. In addition special lectures or clinical demonstrations will be given by the hospital staff on dates to be announced. Fee for the course, £2 2s.; including three months' hospital practice, £3 3s. Tutorial or coaching classes for the various examinations arranged as far as possible to suit candidates. Further particulars may be obtained from the honorary secretary, Mr. A. W. Ormond.

TOTTENHAM HOSPITAL, South Tottenham, N.—This general hospital is in the midst of a densely-populated neighbourhood of about half a million inhabitants. It contains medical and surgical wards and a ward for children, having in all 120 beds. Over 1260 patients were treated in the wards last year and there were over 21,800 new out-patients. There are special departments for gynæcological cases, diseases of the eye, ear, throat, and nose, skin diseases, medical electricity and radiography, and dentistry. Operations are performed every afternoon of the week (except Saturday) at 2.30 P.M. Clinical instruction is given daily in the wards and out-patient departments in connexion with the North-East London Post-graduate College attached (see p. 626). There are three Resident Medical Officers, and Clinical Assistants are appointed under certain conditions. Further particulars in regard to the hospital may be obtained from Mr. H. W. Carson, Secretary to the Medical Committee, 26, Welbeck-street, W.; or from Dr. A. J. Whiting, Dean of the North-East London Post-Graduate College, 142, Harley-street, W.

Staff.—Consulting Physicians: Sir James Reid, Bart., and Dr. Percy Kidd. Consulting Surgeons: Mr. J. Langton, Mr. G. Lichtenberg, and Mr. Hooper May. Physician: Dr. R. Murray Leslie. Physician to Out-patients: Dr. G. P. Chappel. Assistant Physician: Dr. A. J. Whiting. Surgeons: Mr. Walter Edmunds and Mr. H. W. Carson. Gynæcologist: Dr. A. E. Giles. Surgeon to Ear, Nose, and Throat Department: Mr. H. W. Carson. Ophthalmic Surgeon: Mr. R. P. Brooks. Physician for Skin Diseases: Dr. G. Norman Meachen. Medical Officer in charge of the X Ray and Electrical Departments: Mr. R. Higham Cooper. Dental Surgeon: Mr. W. Donston. Anæsthetics: Mr. A. De Prenderville, Mr. F. Herbert Wallace, and Dr. H. Vaughan Pryce. Pathologist: Dr. G. Basil Price. Medical Registrar: Dr. G. N. Meachen. Surgical Registrar: Mr. C. W. Hutt. Secretary: Mr. F. W. Drewett.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—This hospital has 26 beds and possesses facilities for clinical teaching daily. Classes of instruction in the use of the Ophthalmoscope, with demonstrations on cases, and also classes on Refraction, are given during the winter months, commencing in October. The out-patient work begins at one o'clock and operations are performed daily between one and four o'clock.

Staff.—Consulting Physician: Sir Dyce Duckworth. Surgeons: Mr. T. Brittin Archer, Mr. Ernest Clarke, Mr. A. P. L. Wells, Mr. H. Parker, and Mr. N. M. MacLehose. Assistant Surgeon: Mr. W. I. Hancock. Physician: Mr. Charles O. Hawthorne. Pathologist: Mr. Stephen Mayou. House Surgeon: Mr. J. M. Pollard. Dentist: Mr. E. P. May. Secretary: Mr. H. R. S. Druce.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C. Rebuilt 1905.—The out-patient practice is open to the medical profession at the following times: Every day, from 2 to 4 P.M., and every evening (except Saturday) 6 to 8. Specially selected Clinical Demonstrations, also demonstrations on the different diseases presenting themselves in the out-patient department, followed by Lectures, will also be given. The x ray department is in operation on Monday and Friday afternoons.

ST. PETER'S HOSPITAL FOR STONE AND URINARY DISEASES, Henrietta-street, Covent-garden. Established 1860. New Hospital opened, 1882.—Honorary Surgeons: Mr. F. Swinford Edwards and Mr. P. J. Freyer. Assistant Surgeons: Mr. John Pardoe and Mr. J. W. Thomson Walker. The hospital contains 24 beds for men and 2 beds for women and children. Consultations are held and operations are performed each Wednesday and Friday at 2 P.M. Medical practitioners and students are invited to the clinical instructions which are given in the wards and out-patient department daily, and to the operations in the theatre on Wednesdays and Fridays at 2 P.M. Average beds occupied daily, 24; average out-patients seen daily, 100.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—Physicians: Dr. Eustace Smith, Dr. J. A. Coutts, Dr. Morley Fletcher, and Dr. E. Graham Little. Surgeons: Mr. H. Betham Robinson and Mr. Cuthbert S. Wallace. Assistant Physicians: Dr. A. M. Gossage, Dr. Clive Riviere, Dr. W. P. S. Branson, and Dr. T. Fisher. Assistant Surgeons: Mr. W. Trotter and Mr. W. H. Bowen. Ophthalmic Surgeon: Mr. W. I. Hancock. Dental Surgeon: Mr. E. S. Pierrepont. Medical Officer for the Electrical Department: Dr. G. Graham. Medical Officer for the Casualty Department: Dr. H. Pritchard. Resident Medical Officer: Dr. S. A. Owen. House Physician: Mr. C. E. Iredell. House Surgeon: J. W. Parker. Secretary: W. M. Wilcox. The hospital maintains 119 cots, and on an average 259 out-patients are seen daily. Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum. All particulars may be obtained on application to the Secretary. Two clinical clerkships for qualified or unqualified students are open every three months, subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to Mr. H. Betham Robinson or to W. M. Wilcox, the Secretary.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark-bridge-road, S.E.—Consulting Physicians: Dr. J. F. Goodhart, Dr. Frederick Taylor, and Dr. Nestor Tirard. Physicians: Dr. Frederick Willcocks and Dr. J. Charlton Briscoe. Physicians in charge of Out-patients: Dr. J. R. C. Whipham and Dr. D. Forsyth. Consulting Surgeons: Sir H. G. Howse, Mr. R. Clement Lucas, Mr. G. H. Makins, Mr. F. S. Eve, Mr. F. C. Abbott, and Mr. A. H. Tubby. Surgeons: Mr. C. H. Fagge and Mr. H. S. Clogg. Surgeons in charge of Out-Patients: Mr. Sydney Scott and Mr. W. M. Mollison. Dental Surgeon: Mr. Denison Pedley. Ophthalmic Surgeon: Mr. Sydney Stephenson. House Physician: Mr. C. K. Attlee. House Surgeon: Mr. Hamilton Irving. Assistant House Surgeon: Mr. H. F. Marshall. Pathologist: Mr. A. N. Leathem. Dispenser: Mr. F. A. Hocking. Radiographer: Mr. R. H. Cooper.

VICTORIA HOSPITAL FOR CHILDREN, Chelsea, S.W.—The hospital contains 104 beds (of which 16 are not available through lack of funds) and has a large out-patient department (over 1000 weekly); the home at Broadstairs has 50 beds. Consulting Physicians: Sir William Broadbent, Bart., Sir Francis Laking, and Dr. Ridge Jones. Consulting Surgeons: Mr. Cowell, Mr. Pickering Pick, and Mr. D'Arcy Power. Physicians: Dr. Montague Murray, Dr. Walter Carr, Dr. Humphry D. Rolleston, Dr. William James Fenton, Dr. Edmund Ivens Spriggs, and Dr. A. J. Jex-Blake. Physician to Skin Department: Dr. J. M. H. MacLeod. Surgeons: Mr. Raymond Johnson, Mr. H. F. Waterhouse, and Mr. Rupert H. Bucknall. Surgeons to the Out-patients: Mr. Percy W. G. Sargent, Mr. Joseph Cunning, and Mr. W. Fedde Fedden. Ophthalmic Surgeon: Mr. C. Devereux Marshall. Dental Surgeon: Mr. C. E. Wallis. Anæsthetists: Dr. E. Chittenden Bridges, Dr. Randolph Grosvenor, and Dr. Reginald H. Tribe. House Surgeon: Mr. R. H. Humphry. House Physician: Dr. G. Laurence. Secretary: Mr. H. G. Evered. Out-patients are seen as under:—Diseases of the Eye: Wednesday, 2 P.M. Diseases of the Skin: Wednesday, 2 P.M. Whooping-cough Cases: Fridays, 9.30 A.M. Medical and Surgical Cases: Monday and Thursday mornings at 9 A.M.; any afternoon except Wednesday and Saturday at 12.30 P.M. Dental Cases: Wednesday mornings at 9.30 A.M. Accidents and urgent cases are admitted at any time.

WEST LONDON HOSPITAL, Hammersmith-road, W.—This hospital has 159 beds, all of which are at present in use. About 2600 in-patients and 37,000 out-patients, whose attendances number 100,000, are treated annually. Physicians: Dr. D. W. C. Hood, Dr. Seymour Taylor, and Dr. A. P. Beddard. Physician for Diseases of Women: Dr. J. A. Mansell-Moullin. Surgeons: Mr. C. B. Keetley, Mr. F. Swinford Edwards, Mr. S. Paget, and Mr. L. A. Bidwell. Surgeon for Diseases of the Eye: Mr. H. P. Dunn. Assistant Physicians: Dr. E. A. Saunders, Dr. H. Davis, and Dr. A. E. Russell. Assistant Physician for Diseases of Women: Dr. G. H. Drummond Robinson. Assistant Surgeons: Mr. A. Baldwin and Mr. Donald Armour. Surgeon-Dentist: Mr. H. Lloyd Williams. Physician in charge of Throat and Nose and Aural Department: Dr. J. B. Ball. Assistant Physician Aural Department: Dr. H. J. Davis. Physician in charge of Children's Department: Dr. E. A. Saunders. Surgeon in charge of Orthopædic Department: Mr. C. B. Keetley. Pathologist: Dr. G. C. Low. Dermatologist: Dr. P. S. Abraham. Officers in charge of the X Ray Department: Mr. Chisholm Williams and Dr. D. Arthur. Administrators of Anæsthetics: Messrs. T. Gunton Alderton, Rickard W. Lloyd, E. W. Lewis, and G. P. Shuter. Electrician: Dr. H. Davis. Secretary of the Hospital: Mr. R. J. Gilbert; of the College: Mr. H. Grant Rawle. Attached to th[illegible]ital is the West London

Post-Graduate College. The practice of the hospital is reserved exclusively for qualified men, no junior students being admitted. Instruction is given in the medical and surgical out-patient rooms daily and demonstrations are given in the wards on certain fixed days. Post-graduate lectures and demonstrations are given daily except Saturdays; notice of the commencement of each course is advertised in the medical journals. Special Classes are held in Diseases of the Throat and Nose, Skin, and Eye, and in Gynæcology, Medical Electricity, Operative Surgery, Bacteriology, Anæsthetics, Intestinal Surgery, Surface Anatomy, Blood and Urine, Clinical Microscopy, and Tropical Medicine. The accommodation for post-graduates consists of a large lecture room, together with reading and writing rooms, &c. The hospital has a fully equipped pathological laboratory at which instruction is given in elementary bacteriology, a class being held every month. The fees for hospital practice, including lectures, are £5 5*s.* for three months or £12 12*s.* for one year. The certificate of the hospital is accepted by the Admiralty, War Office, and India Office in cases of study leave. Further information can be obtained on application to the Dean, Mr. L. A. Bidwell, at the hospital.

North-Eastern Hospital for Children, Hackney-road, Bethnal-green, E. (Telephone 305 Dalston). For the sick children of the poor under 12 years of age. Established 1867.—125 beds. During the past year 1685 in-patients and 27,733 out-patients (representing 75,637 attendances and including 8967 accident and emergency cases) were relieved, 535 of the in-patients being under two years of age. Consulting Physicians: Dr. A. E. Sansom, Dr. W. Cayley, Dr. W. Pasteur, and Dr. W. A. Wills. Consulting Surgeons: Mr. Jonathan Hutchinson, Mr. Waren Tay, Mr. R. J. Godlee, Mr. Bilton Pollard, and Mr. H. Percy Dean. Physicians: Dr. James Taylor, Dr. J. Porter Parkinson, and Dr. George Carpenter. Assistant Physicians: Dr. Charles Bolton and Dr. Sheffield Neave. Surgeons: Mr. Douglas Drew and Mr. Ewen O. Stabb. Assistant Surgeons: Mr. P. Lockhart Mummery and Mr. J. M. G. Swainson. Ophthalmic Surgeon: Mr. Sydney Stephenson (Thursday, 2.30 P.M.). Physician in charge of Skin Department: Dr. H. G. Adamson. Dental Surgeon: Mr. S. F. Rose (Tuesday, 9.30 A.M., and Friday, 2.30 P.M.). Medical Radiographer: Mr. Chaworth Nolan. Pathologist and Bacteriologist: Mr. W. A. Milligan. Matron: Miss Bushby. Secretary: Mr. T. Glenton-Kerr. The surgeons attend on Wednesdays and Saturdays at 2 P.M. and Fridays at 9.30 A.M.; the physicians daily at 2 P.M., except Saturday, 9.30 A.M. Applications for permission to attend the practice of the hospital should be addressed to the secretary.

North-West London Hospital, Kentish Town-road.—Consulting Physician: Dr. Donald W. C. Hood. Consulting Surgeon: Mr. Frederic Durham. Physicians: Dr. Harry Campbell, Dr. W. Knowsley Sibley, and Dr. G. A. Sutherland. Assistant Physician: Dr. C. O. Hawthorne. Surgeons: Mr. M. P. Mayo Collier, Mr. J. Jackson Clarke, and Mr. George Templeton. Assistant Surgeon: Mr. J. W. Thomson Walker. Physician for Diseases of the Skin: Dr. J. Herbert Stowers. Obstetric Physician: Dr. John Shaw. Ophthalmic Surgeon: Sir William J. Collins. Dental Surgeon: Mr E. Faulkner Ackery. Anæsthetists: Dr. G. A. H. Barton and (vacant). Resident Medical Officers: Mr. J. Ferguson and Mr. J. Braybrook Binns. The hospital, which was established in 1878, provides 50 beds. The average number occupied last year was 45. It is a general hospital. There are two spacious wards for men and women respectively. The children's ward contains 15 cots. There are two Resident Medical Officers—an honorarium at the rate of £50 per annum attaches to each post. Operation days, Monday and Thursday at 2.30 o'clock. Further particulars from the secretary at the hospital.

Royal Army Medical Corps (Volunteers) (London Companies), Calthorpe-street, Gray's Inn-road, W.C.—Officer Commanding: Lieutenant-Colonel Valentine Matthews. The Royal Army Medical Corps (Volunteers) bears the same relation to the Volunteer Army as the Royal Army Medical Corps bears to the regular Army. The course of training has the great advantage of affording, in addition to a knowledge of ordinary military duties, special ambulance instruction useful in all ranks of life. All students who are thinking of entering either of the public services are strongly recommended to join. The instruction received will be found of the greatest advantage to such as intend joining either the Royal Army Medical Corps or the Indian Medical Service on the completion of their hospital course, the work taught in the Royal Army Medical Corps (Volunteers) being practically the same as that taught at the Depôt, Royal Army Medical Corps, Aldershot, and in which an examination is held at the end of the four months' course there before the young officers are drafted to their different stations. A sound knowledge of the work, which can be obtained in the Royal Army Medical Corps (Volunteers) must necessarily be of great benefit to those going through the depôt and give a decided advantage over those who have had no previous military training. In addition to the drills of an ordinary infantry corps, the special training includes stretcher and wagon and cacolet drill; the use of improvised seats and stretchers; the use and application of bandages, splints, &c.; the duties of the *personnel* of a field ambulance; lectures by the officers on first aid to the injured, and on the elements of anatomy, physiology, hygiene, and nursing, which are so arranged as not to interfere with the lectures, &c., carried on at the various hospitals in London. The corps goes into camp for a week in the summer each year for field training. There is also a Shooting Club in the corps, in which instruction in, and facilities for, the practice of rifle shooting are given. There is a Transport Section in connexion with the corps, the members of which go through a course of instruction in riding and driving and transport work with the regular troops. There are also sections of Cyclists and Signallers. A Gymnastic and Boxing Class meets once a week at headquarters, under a professional instructor. Lectures are delivered during the winter session. The headquarters contain a fine drill-hall, mess-rooms, canteen, &c., where dinners, suppers, dances, and smoking concerts can be held at any time. The Adjutant will give any information respecting the above on application to the headquarters, Calthorpe-street, Gray's Inn-road, W.C.

Cooke's School of Anatomy, Physiology, and Operative Surgery, London.—The school is prepared to admit to its supplementary work all who may wish to join the same, but in regard to its curriculum work it does not receive more than half-a-dozen students in the course of the year; these have special advantages both as regards Anatomy and Physiology. Charges are but slightly in excess of current charges and particulars are forwarded on application. By the decision of various examining bodies gentlemen rejected at their Anatomical and Physiological Examinations can get signed up for the supplementary work they are required to put in before re-examination. The operations of surgery are performed on the dead body and the courses are recognised for army promotion. The school possesses a good collection of physiological and chemical apparatus and candidates for the higher examinations receive special instruction in the more difficult subjects.

PROVINCIAL MEDICAL SCHOOLS AND HOSPITALS HAVING SPECIAL CLASSES AND FACILITIES FOR CLINICAL STUDY.[1]

The University of Birmingham (Faculty of Medicine).—An Ingleby Scholarship is annually awarded to the candidate obtaining the highest number of marks in Obstetric Medicine and Surgery and Diseases of Women and Children at the final M.B. examination. One or more Sydenham Scholarships are offered annually of the value of 40 guineas each. The orphan sons of former students of the Birmingham Medical School have priority of election. No Sydenham scholars are elected whose age exceeds 23 years on the day of election. The Scholarships are held for three years, subject to good behaviour. A Sands Cox Scholarship is offered annually of the value of 40 guineas. It may be held for three years, one-third being paid each year, subject to good behaviour. Queen's Scholarships of the value of £10 10*s.* are awarded at the end of the Second, Third, Fourth, and Final M.B., Ch.B. University examinations. The Russell Memorial Prize is awarded annually after examination in Nervous Diseases. The Walter Myers Travelling Studentship of the value of £150, tenable for one year at one of certain Universities in Germany, is open to graduates of the University of Birmingham whose age does not exceed

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[1] For Scholarships see p. 597 et seq.

30 years. The medical courses qualify for the diplomas of all Licensing Bodies and for the degrees in Medicine and Surgery of British Universities. The Dental School, in conjunction with the General, Queen's, and Dental Hospitals, affords a complete curriculum for all Dental diplomas. The Library contains upwards of 28,000 volumes. Syllabuses containing full information as to the various courses of instruction, lecture days, and hours, fees, scholarships, &c., will be forwarded on application to Professor Barling, the Dean of the Medical Faculty. The Medical Session opens on Monday, Oct. 1st, 1906.

THE GENERAL AND QUEEN'S HOSPITALS, BIRMINGHAM.—The practices of these hospitals are amalgamated for the purpose of Clinical Instruction under the direction of the Birmingham Clinical Board, by whom all schedules will be signed and all examinations conducted. The hospitals have a total of upwards of 450 beds. 7000 in-patients and 90,000 out-patients are treated annually. The following appointments are open to past students. At the General Hospital: one resident medical officer, salary £70 a year (a degree in medicine is necessary); one resident surgical officer, salary £100 a year; two non-resident casualty assistant physicians, salary £50 a year; two non-resident surgical casualty officers, salary £50 a year; two non-resident anæsthetists, salary £50 a year; four house surgeons, office tenable for six months, salary £50 a year; one resident pathologist tenable for six months, salary £50 a year; three house physicians, tenable for six months, salary £50 a year; one resident medical officer at the Jaffray Branch Hospital, salary £150 a year; and one resident assistant at the Jaffray Hospital (post vacant early in April, July, October, and January, tenable for three months). At the Queen's Hospital, the Birmingham University; two non-resident physicians for out-patients, salary £50 a year; three non-resident surgeons for out-patients, salary £50 a year; one non-resident pathologist, salary £50 a year; three qualified house physicians (posts vacant in January and April, tenable for six months at a salary at the rate of £50; three qualified house surgeons (posts vacant in January and April, tenable for six months at a salary at the rate of £50); one qualified obstetric and ophthalmic house surgeon (post vacant in April and October, tenable for six months), salary at the rate of £50 a year; and one unqualified resident dresser (post vacant January, April, July, and October, tenable for three months).

Staff of General Hospital: Honorary Consulting Physicians: Right Hon. Sir W. Foster and Dr. E. Rickards. Honorary Consulting Obstetric Officer: Dr. E. Malins. Honorary Physician: Dr. R. Saundby, Dr. R. M. Simon, Dr. S. Wilson, and Dr. T. S. Short. Honorary Surgeons: Sir T. F. Chavasse, Mr. G. Barling, Mr. W. F. Haslam, and Mr. G. Heaton. Honorary Obstetric Officer: Dr. Thos. Wilson. Honorary Ophthalmic Surgeon: Mr. D. C. Lloyd-Owen. Aural Surgeon and Laryngologist: Dr. F. W. Foxcroft. Assistant Physicians: Dr. J. W. Russell and Dr. Stanley Barnes. Assistant Surgeons: Mr. A. Lucas and Mr. L. P. Gamgee. Assistant Obstetric Officer: Mr. J. T. Hewetson. Physician in Charge of Skin Department: Dr. A Douglas Heath. Anæsthetists: Dr. S. Haynes and Dr. W. J. McCardie. Casualty Assistant Physicians: Dr. W. H. Wynn and Dr. J. E. H. Sawyer. Surgical Casualty Officers: Mr. F. V. Milward and Mr. F. Barnes. Dental Surgeon: Mr. A. T. Hilder. Surgical Radiographer: Dr. J. Hall Edwards.

Staff of Queen's Hospital.—Consulting Physicians: Sir J. Sawyer and Dr. Suckling. *Consulting Surgeons:* Mr. F. Jordan, Mr. J. St. S. Wilders, Mr. F. Marsh, and Mr. Bennett May. *Consulting* Ophthalmic Surgeon: Mr. Priestley Smith. Physicians: Dr. Carter, Dr. Foxwell, and Dr. Kauffmann. Surgeons: Mr. Jordan Lloyd, Mr. J. T. J. Morrison, and Mr. Leedham Green. Ophthalmic Surgeon: Mr. W. Allport. Obstetric Officer: Dr. Purslow. Physicians for *Out-patients:* Dr. Stanley and Dr. Emanuel. Surgeons for Out-patients: Mr. Billington and Mr. Nuthall. Pathologist: office vacant.

UNIVERSITY COLLEGE, BRISTOL (FACULTY OF MEDICINE).—Extensive additions have been made to the Anatomical, Bacteriological, and Pathological Departments. Students of the College *are admitted* to the *Clinical* Practice of the Bristol Royal Infirmary and the Bristol General Hospital conjointly, and consequently both these institutions are open to all students. The Infirmary and the *Hospital comprise* between them a total of 470 beds; and both have very extensive out-patient departments, special departments for the Diseases of Women and Children, and of the Eye, Ear, and Throat, besides large out-door Maternity Departments and Dental Departments. Students may also attend the practice of the Bristol Royal Hospital for Sick Children and Women, containing 104 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is 614. Very exception facilities are thus offered to students for obtaining a wide and thorough acquaintance with all branches of *Medical and Surgical* work. Each student has the opportunity of personally studying a large number of cases and of acquiring *practical skill in diagnosis* and treatment. The annual prize distribution will take place at the hand of Professor Alex. Macalister, F.R.S., of Cambridge, on Oct. 2nd.

Courses of Lectures.—Medicine: Professor F. H. Edgeworth and Professor J. Michell Clarke. Surgery: Professor C. A. Morton and Professor *James Swain. Anatomy:* Professor Edward Fawcett. Practical Anatomy: Demonstrators, Dr. E. W. Hey Groves and Dr. W. S. Vernon Stock. Physiology and Histology: Professor A. F. Stanley Kent. Demonstrator: Dr. Fortescue-Brickdale. Chemistry: Professor Morris W. Travers. Public Health: Dr. D. S. Davies. Midwifery: Professor W. C. Swayne. *Medical Jurisprudence:* Dr. R. Eager and *Dr. G. Parker.* Pathology and Morbid Anatomy: Professor I. Walker Hall. *Demonstrator: Dr. Carey F. Coombs.* Operative Surgery: Mr. J. Paul Bush. Practical Medicine: Professor Edgeworth and Professor Michell Clarke. Practical Surgery: Dr. R. G. Poole Lansdown. Practical Midwifery: Mr. D. C. Rayner. Materia Medica and Practical Pharmacy: Mr. C. C. M. Davis. Pharmacology and Therapeutics: Dr. Newman Neild. Biology: Professor S. H. Reynolds. Practical Chemistry: Professor Morris W. Travers. Practical Bacteriology: Professor A. F. Stanley Kent. Comparative Anatomy: Professor C. *Lloyd Morgan. Dental Anatomy and* Physiology, Dental Histology, and Dental Bacteriology: *Professor A. F. Stanley Kent. Dental Surgery* and *Practical* Dental Surgery: Mr. W. R. Ackland. Dental Mechanics and *Dental Metallurgy and Practical* Dental Metallurgy: Dr. C. A. Hayman. Composition fee for lectures and hospital practice, 133 guineas. Composition fee for Dental lectures and surgical practice, 75 guineas. Special six months' course for Diploma in Public Health. 1. Lectures on Public Health: *Dr. D. S. Davies.* 2. *Bacteriology:* Professor A. F. Stanley Kent. 3. Laboratory Course of Hygienic Chemistry: Mr. F. W. Stoddart. 4. Demonstrations on the Various Acts, Orders, By-laws, &c.: Mr. J. C. Heaven. 5. Practical Outdoor Sanitary Work: *Dr. D. S. Davies. Fee for the* entire course 25 guineas. Full information can be obtained *on application to the Dean, Professor* Edward Fawcett, University College, Bristol.

ROYAL INFIRMARY, BRISTOL (*Established 1735*).—*270 beds.* Honorary and Consulting Physicians: Dr. *W. H. Spencer, Dr. R. Shingleton Smith,* and Dr. H. Waldo. Honorary and Consulting Surgeons: Mr. E. C. Board, Mr. W. H. Harsant, and Mr. A. W. Prichard. Honorary and Consulting Ophthalmic Surgeon: Mr. F. Richardson Cross. Honorary Physicians: Dr. J. E. Shaw, Dr. A. B. Prowse, Dr. P. Watson Williams, and *Dr. F. H. Edgeworth.* Honorary Surgeons: Mr. J. Paul Bush, Mr. G. Munro Smith, Dr. J Swain, and Mr. T. Carwardine. Honorary Ophthalmic Surgeon: *Dr. Ogilvy. Honorary* Obstetric Physician: Dr. Walter Swayne. Honorary Dental Surgeon: Mr. W. R. Ackland. Honorary Assistant Dental Surgeon: Dr. Charles A. Hayman. Honorary Assistant Physicians: Dr. J. R. Charles and Dr. J. A. Nixon. Honorary *Assistant Surgeons:* Mr. H. F. Mole and Mr. E. H. E. Stack. Pathologist: Dr. I. Walker Hall. Honorary Demonstrator of Morbid Anatomy: Dr. J. J. S. Lucas. Honorary *Anæsthetist:* Mr. A. L. Fleming. Honorary Assistant Anæsthetist: Mr. S. V. Stock. Honorary *Skiagraphist: Mr.* James Taylor. House Surgeon and Senior Resident Medical Officer: Dr. A. Rendle Short. House Physician: Mr. A. L. *Sheppard.* Resident Obstetric Officer: Mr. F. H. Rudge. Anæsthetist and Junior House Surgeon: Mr. L. Shingleton Smith. Casualty Officer: Mr. A. J. Wright.

BRISTOL GENERAL HOSPITAL.—Honorary and *Consulting* Physician: Dr. A. J. Harrison. Honorary and Consulting Surgeons: Mr. Robert W. Coe, *Dr. George* F. Atchley, Mr. F. Poole Lansdown, Mr. Nelson C. Dobson, and Mr. Chas. F. Pickering. Physicians: Dr. E. Markham Skerritt, Dr. J. Michell Clarke, and Dr. George Parker. Surgeons: Mr. C. A. Morton, Dr. R. G. Poole Lansdown, Dr. J. Lacy Firth, and Dr. H. Greville Kyle. Physician Accoucheur: Dr. W. H. C. Newnham. Physician to Department for Diseases of the Skin: Dr. W. Kenneth Wills. Surgeon to the Throat and Nose: Dr. J. Lacy Firth. Ophthalmic Surgeon: Mr. Cyril H. Walker. Assistant Physicians: Dr. J. O. Symes and Dr. Newman Neild. Assistant Surgeon: Mr. E. W. H. Groves. Assistant Physician Accoucheur: Mr. D. C. Rayner. Anæsthetists: Mr. J. Freeman and Mr. Hedley Hill. Dental Surgeon: Mr. T. Taylor Genge. Pathologists: Dr. J. Michell Clarke and Dr. Newman Neild. Curator of Museum: Dr. Coombs. Bacteriologist: Dr. J. O. Symes. Skiagraphist: Dr. J. Ellington Jones.

Clinical Scholarships and Prizes.—These are open for competition only to "Perpetual" Clinical Students. 1. Scholarships and Prizes, open to all students of Bristol Medical School:—(*a*) University Entrance Scholarship of £50 and Haberfield Entrance Scholarship of £30. (*b*) Tibbitts Surgical Prize, £9 9*s.*; and two Martyn Pathological Prizes of £10 each. (*c*) A Gold Medal and a Silver Medal given by the committees of the two institutions. 2. Restricted to students who have done the necessary qualifying work at the Bristol Royal Infirmary: Suple Medical Prize (consisting of a Gold Medal, value 5 guineas, and 7 guineas in money); Suple Surgical Prize (consisting of a Gold Medal, value 5 guineas, and 7 guineas in money); Clark Prize, value £11 11*s.*; Crosby Leonard Prize in Clinical Surgery, value £7 7*s.*; and Augustin Prichard Prize in Surgical Anatomy, value £7 7*s.* 3. Restricted to students who have done the necessary qualifying work at the Bristol General Hospital:—Clarke Scholarship, a surgical scholarship of the value of £15; Sanders Scholarship, a scholarship of the value of £22 10*s.*; and the Marshall Prize, value about £12.

Resident Appointments.—There are five resident appointments at the Infirmary and five in the Hospital, and the Dressers reside in rotation, free of expense. The Maternity students also have rooms provided in the institutions.

Fees.—Medical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Surgical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Medical and Surgical Practice together in one payment: six months, 12 guineas; one year, 20 guineas; perpetual, 35 guineas. Dental Surgical Practice: one year, 7 guineas; perpetual, 12 guineas. The above fees include Clinical Lectures. Clinical Clerkship: 5 guineas for six months. Dressership: 5 guineas for six months. Museum fee: 3 guineas (composition on entrance), or 1 guinea annually. Dispensing Fee: 2 guineas. Students from other schools or qualified medical men wishing to attend Clinical Practice for short periods and not requiring certificates for such attendance may do so for the following fees:—Medical and Surgical Practice conjointly: one month, 2 guineas; two months, 3 guineas; three months, 4 guineas; and six months, 7 guineas.

Further information may be obtained on application to the Dean of the Faculty.

OXFORD: RADCLIFFE INFIRMARY.—At this hospital courses of instruction are conducted in connexion with the Oxford University Medical School. These include (1) a course in Practical Medicine by the Regius Professor of Medicine; (2) Clinical lectures by the Litchfield Lecturers in Medicine and Surgery; and (3) tutorial instruction and demonstrations in special Regional Anatomy (medical and surgical), methods of Medical and Surgical Diagnosis, and Surgical Manipulation. Demonstrations of Pathology are given in the post-mortem room and at the Pathological Department, University Museum, by the Professor of Pathology. Practical Pharmacy is taught in the Infirmary Dispensary. The whole combined course of study at the museum and hospital is intended for students until they have passed the Second Conjoint Examination or the first Oxford M.B. The infirmary contains 130 beds.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery, in connexion with Cambridge University Medical School, are delivered at this hospital twice a week during the academical year; and practical instruction in Medicine and Surgery in the wards and out-patients' rooms is given by the physicians and surgeons daily, during the vacations as well as term time. Instruction is also given in the special methods of medical and surgical investigation. Clinical Clerks and Dressers are selected from students according to merit. The composition fee for pupilship is 8 guineas.

UNIVERSITY COLLEGE, CARDIFF, SCHOOL OF MEDICINE.—All classes are open to both men and women students who may spend three out of their five years of medical study at Cardiff. The courses of study are recognised as qualifying for the Preliminary Scientific and Intermediate Examination in Medicine in the University of London and for the corresponding examinations in the other Universities. Students who are preparing for these examinations may compound for their courses by paying a fee of £57 10*s.*, while a composition fee of £41 10*s.* includes all the necessary courses for the first and second examinations for the Diploma of the Conjoint Board. In all cases the composition fees may be paid by instalments. Hospital instruction is given at the Cardiff Infirmary. The attention of students about to matriculate is drawn to the numerous entrance scholarships and exhibitions, varying in value from £10 to £30 per annum, offered for competition at University College, Cardiff, in September next, most of which may be held by medical students. Full particulars of the examination for these may be obtained by application to the Registrar. In the department of Public Health established in 1899 instruction is given qualifying for the D.P.H. examinations. Further information may be obtained from the Dean of the Faculty of Medicine.

Lecturers.—Physics: Professor A. L. Selby. Chemistry: Professor C. M. Thompson. Zoology: Professor W. N. Parker. Botany: Professor A. H. Trow. Anatomy: Professor David Hepburn. Physiology: Professor J. B. Haycraft. Materia Medica and Therapeutics: Dr. W. Mitchell Stevens. Bacteriology: Mr. H. A. Schölberg. Public Health and Hygiene: Dr. E. Walford and Dr. W. Williams. Midwifery: Dr. E. J. Maclean. Vaccination: Mr. H. A. Schölberg.

CARDIFF INFIRMARY.—Consulting Physicians: Dr. W. T. Edwards, Dr. William Taylor, and Dr. C. T. Vachell. Consulting Surgeons: Dr. Alfred Sheen and Dr. T. Wallace. Consulting Dental Surgeon: Mr. John C. Oliver. Physicians: Dr. F. W. Evans and Dr. H. R. Vachell. Surgeons: Mr. P. Rhys Griffiths, Mr. William Sheen, and Mr. J. Lynn Thomas, C.B. Assistant Physicians: Dr. A. E. Taylor, Dr. W. Mitchell Stevens, and Dr. Cyril Lewis. Assistant Surgeons: Mr. H. G. Cook, Mr. Cornelius A. Griffiths, and Mr. William Martin. Ear, Throat, and Nose Surgeon: Dr. D. R. Paterson. Electrical Department: Mr. William Martin. Ophthalmic Surgeons: Mr. J. T. Thompson and Mr. H. C. Ensor. Assistant Ophthalmic Surgeons: Mr. F. P. S. Cresswell and Mr. R. Russell Thomas. Gynæcologists: Dr. Ewen J. Maclean and Dr. E. Tenison Collins. Pathologist: Dr. W. Mitchell Stevens. Bacteriologist and Assistant Pathologist: Dr. H. A. Schölberg. Anæsthetists: Dr. Fredk. W. S. Davies, Dr. W. G. Williams, and Dr. Alex. Brownlee. Dental Surgeons: Mr. T. W. Kittow and Mr. Thomas Quinlan. Resident Medical Officer: Dr. S. H. West.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—A new wing has been added to accommodate the departments of physiology and bacteriology. It also contains a students' gymnasium and a set of Students' Union rooms. The new Royal Victoria Infirmary, containing upwards of 400 beds, has been recently opened by His Majesty King Edward VII. In the new infirmary adequate accommodation will be provided for the study of the various special subjects, in addition to the ordinary clinical work. The following Scholarships and Prizes are awarded annually:—Four University of Durham Scholarships, value £25, tenable for four years, for proficiency in Arts, awarded to full students in their first year. The Pears Scholarship, value £50 a year, tenable for three years. The Masonic Scholarship, value £15 a year, tenable for three years. The Dickinson Scholarship, value interest of £400, and a Gold Medal, for Medicine, Surgery, Midwifery, and Pathology. The Tulloch Scholarship, value the interest of £400, for Anatomy, Physiology, and Chemistry. The Charlton Scholarship, value the interest of £700, for Medicine. The Gibb Scholarship, value the interest of £500, for Pathology. The Goyder Memorial Scholarship (at the Infirmary), value the interest of £325, for Clinical Medicine and Clinical Surgery. The Luke Armstrong Memorial Scholarship, value the interest of £680, for Comparative Pathology. The Stephen Scott Scholarship in Surgery, value the interest of £1000. Heath Scholarship: The late Dr. George Yeoman Heath, President of the University of Durham College of Medicine, bequeathed the sum of £4000 to found a Scholarship in Surgery, the interest to be awarded every second year; the next award will be in 1908. The Gibson Prize, interest on £225, in the department of Midwifery and Diseases of Women and Children. At the end of each session Prizes of Books are awarded in each of the regular classes. Assistant Demonstrators of Anatomy, receiving each an honorarium of £5, Prosectors, and Assistant Demonstrators of Physiology and Pathology are elected yearly. Pathological Assistants, Assistants to the Dental Surgeon, Assistants in the Eye Department, Throat and Ear Department, and Skin Department, Clinical Clerks, and Dressers are appointed every three months.

NEWCASTLE-UPON-TYNE ROYAL INFIRMARY.—Physicians: Dr. Drummond, Dr. Oliver, Dr. Limont, and Dr. Murray. Assistant Physicians: Dr. Beattie and Dr. Bolam. Surgeons: Mr. Rutherford Morison, Mr. Ridley, Mr. Martin, and Mr. H. B. Angus. Assistant Surgeons: Mr. J. V. W. Rutherford, Mr. Richardson, Mr. Leech, and Mr. Clay. Pathologist: Dr. Bolam. Dental Surgeon: Mr. R. L. Markham. Skin Department: Dr. Limont. Eye Department: Mr. Wardale. Throat and Ear Department: Mr. Ridley. Anæsthetist: Dr. W. D. Arnison. Medical Registrars: Dr. Moore Ede and Dr. Simpson. Surgical Registrars: Mr. G. G. Turner and Mr. J. W. Heslop. The infirmary contains 280 beds. Clinical Lectures are delivered by the Physicians and Surgeons in rotation. Pathological Demonstrations are given by the Pathologist as opportunity offers. Practical Midwifery can be studied at the Newcastle Lying-in Hospital. Instruction is given in Psychological Medicine at the Northumberland County Asylum, Morpeth. A special Course of Instruction is given in the City Hospital for Infectious Diseases by the Superintendent, the City Officer of Health, Mr. H. E. Armstrong. The sessions open on May 1st and Oct. 1st of each year.

THE SCHOOL OF MEDICINE: MEDICAL FACULTY OF THE UNIVERSITY OF LEEDS.—The Leeds General Infirmary, in connexion with this medical faculty, has accommodation for 524 in-patients, including 96 beds at "semi-convalescent" homes in the country. During the last year 6445 in-patients and 38,660 out-patients were treated. Clinical teaching takes place daily in the wards, and Clinical lectures are given in Medicine and Surgery by the Physicians and Surgeons. There are Medical, Surgical, Ophthalmic, Aural, Electrical, Finsen Light, and X-ray Departments, in each of which special instruction is imparted to students. A Gynæcological and Extern Obstetric Department, together with Laryngeal and Skin Clinics, are in operation. The Public Dispensary, the Hospital for Women and Children, the Fever Hospital, the Maternity Home, and the West Riding Lunatic Asylum are other medical institutions which are made use of by the Leeds Students. Twelve years ago the new buildings of the Medical School were opened. Placed closed to the Infirmary, the School of Medicine contains complete accommodation for the training of medical students upon the most approved modern methods. A very fine dissecting-room, extensive laboratories for Physiology and Pathology, with the most recent improvements in fittings and apparatus, ample lecture-room accommodation, a large Library, and separate Museums for Pathology and Anatomy are some of the most striking features of the buildings. Provision for the convenience of students, in the shape of a common room, a refectory, &c., are made. The classes in Systematic and Practical Chemistry, Physics and Biology, are held in the Science and Arts Department of the University, in College-road. Two Entrance Scholarships are offered: one, of the value of £71 0*s.* 6*d.*, covering admission to all requisite lectures; and the other, of the value of 40 guineas, covering the cost of admission to the medical and surgical practice of the infirmary. Several valuable prizes are given at the end of each session. The following appointments at the Infirmary are annually open to students (for some of them, however, a registered legal qualification is required): Non-resident: clinical pathologist, £200; senior anæsthetist, £50; 5 anæsthetists, £25. Resident: medical officer, £150; surgical officer, £150; casualty officer, £125; ophthalmic, £100. These appointments are made annually and holders are eligible for re-election. Resident medical officer to the Ida Hospital, for six months; honorarium £30. Six house physicians, for six months; 7 house surgeons, for six and 12 months; 24 physicians' clerks, for six months; 24 surgeons' dressers, for six months; 16 ophthalmic and aural surgeons' dressers, for three months; 12 gynæcological ward clerks, for three months: 16 gynæcological out-patient clerks, for three months; 24 maternity clerks, for one month; 24 assistant physicians' clerks, for three months; 8 dermatological clerks, for three months; 8 laryngological clerks, for three months; 24 assistant surgeons' dressers, for three months; 8 assistant ophthalmic surgeons' dressers, for three months; 24 dressers in the casualty-room, for three months; 24 post-mortem room clerks, for three months; 8 laboratory assistants, for three months. There are appointments open to students in other medical institutions in the town and also in the West Riding (Lunatic) Asylum.

THE UNIVERSITY OF LIVERPOOL: FACULTY OF MEDICINE.—Students may enter for the degrees of the University of Liverpool or study for the degrees and qualifications of the various other licensing bodies. The conditions as to degrees will be found on p. 553 under the heading of the University of Liverpool.

Medical School Buildings.—Spacious and well-equipped class-rooms and laboratories have been erected for the practical study of all the important scientific subjects which form the basis of medicine. Medical research has also been endowed with several new laboratories in which students can pursue research work after graduation. All the laboratories and class-rooms are situated close together, communicating with one another, and are made up of four large blocks of buildings which form one side of the College quadrangle. The most recent additions are the Johnston Laboratories for Experimental Medicine, Bio-chemistry, and Comparative Pathology and the new building for Anatomy, Surgery, Toxicology, Ophthalmology and Dental subjects, which has just been completed. The departments of Physiology and Pathology are accommodated in the large block provided by the generosity of the late Rev. S. A. Thompson Yates in 1898. The Anatomical department is situated in a separate block and has a complete suite of rooms, including a large and well-stocked museum and a well-lighted dissecting room on the upper floor measuring 70 by 40 feet.

Hospitals.—The Clinical School of the University now consists of four general hospitals—the Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, and the Stanley Hospital; and of five special hospitals—the Eye and Ear Infirmary, the Hospital for Women, the Infirmary for Children, St. Paul's Eye and Ear Hospital, and St. George's Hospital for Skin Diseases. These hospitals contain in all a total of 1127 beds. The organisation of these hospitals to form one teaching institution provides the medical student and the medical practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom. All the hospitals are within easy access from the University; those which are situated at any distance are readily reached by the tramway service of the city. The period of hospital practice extends over the last three years of medical study. During the first two years of this period no student will be permitted to change his attendance from one general hospital to another except at the commencement of an academic term. It is a regulation of the school that not more than five of the six terms of these two years shall be spent at any single general hospital. During the final year of hospital practice a student is permitted to attend the practice of all the general hospitals without restriction. The regulations demand only that his attendance shall be regular and to the satisfaction of the hospital's board. There are a large number of appointments to house physicianships and surgeonships both at the general and special hospitals which are open to qualified students of the school. These appointments (20) in most cases carry salaries ranging from £60 to £100 per annum. Applications for further information regarding the Clinical School should be addressed to the Dean of the Faculty of Medicine.

Fellowships and Scholarships.—Fellowships, scholarships, and prizes of over £1000 are awarded annually. A Holt Fellowship in Pathology and Surgery of the value of £100 for one year is awarded annually by the Medical Faculty to a senior student possessing a medical qualification. The successful candidate is required to devote a year to tutorial work and investigation in the pathological department. A Holt Fellowship in Physiology, awarded under similar conditions of the value of £100 for one year. A Robert Gee Fellowship in Anatomy, awarded under similar conditions, also of the value of £100 for one year. An Alexander Fellowship for Research in Pathology of the annual value of £100, renewable. A Johnston Colonial Fellowship in Pathology and Bacteriology (£100 a year, renewable). A John W. Garrett International Fellowship in Physiology and Pathology (£100 a year, renewable). An Ethel Boyce Fellowship in Gynæcological Pathology (£100 a year, renewable). A Stopford Taylor Fellowship (£100 a year, renewable) in Dermatology. A Thelwall Thomas Fellowship (£100 a year, renewable) in Surgical Pathology. Two Lyon Jones Scholarships of the value of £21 each for two years are awarded annually—a Junior Scholarship, open at the end of the first year of study to Liverpool University students, on the subjects of the First M.B. Examinations, and a Senior Scholarship, open to all students in the school at the end of the second or third year of study, on the subjects of Anatomy, Physiology, and Therapeutics. The Derby Exhibition of £15 for one year is awarded in Clinical Medicine and Surgery in alternate years. Students may compete in their fourth and fifth years. In 1907 the subject will be Clinical Medicine. The Torr Gold Medal in Anatomy, the George Holt medal in Physiology, the Kanthack Medal in Pathology, the Robert Gee Book Prize, of the value of £5, for Children's Diseases, and numerous Class Prizes are awarded annually.

Entrance Scholarships. — Two Robert Gee Entrance Scholarships of the value each of £25 per annum for two years are offered annually for competition. The holder is required to take out the Science Course for the University Degree in Medicine. Communications should be addressed to the Dean, Professor Benjamin Moore, The University, Liverpool.

School of Tropical Medicine.—Courses of instruction are given in Tropical Diseases, particulars regarding which may be obtained from Mr. A. H. Milne, B 10, Exchange-buildings, Liverpool. A diploma in Tropical Medicine is now granted by the University.

School of Veterinary Medicine.—A school of Veterinary Medicine in connexion with the University was opened in October, 1904; full courses of instruction for the Veterinary Curriculum will be provided and students will be prepared for the M.R.C.V.S. A diploma in Veterinary Hygiene is now granted by the University.

Public Health Department.—This is located in a separate building known as Ashton Hall in which full courses of instruction are given to D.P.H. students for the D.P.H. of the University.

Special Diplomas.—The University has instituted diplomas in Anatomy, Bacteriology, Bio-chemistry, and Parasitology. A special course of study of three terms' duration is required in the subject chosen for the diploma and allied subjects.

School of Pharmacy.—Complete courses of instruction are provided adapted to the requirements of candidates preparing for either the Minor or Major Examinations of the Pharmaceutical Society of Great Britain.

Prospectuses and further information may be had on application to the Registrar, University of Liverpool.

THE VICTORIA UNIVERSITY OF MANCHESTER: MEDICAL FACULTY.—This medical school is located in a large building, which forms a part of the University. It is provided with large dissecting-rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, a museum, and a library. In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy, Physiology, Pathology, and Materia Medica, a large extension of the school buildings was made in 1895. The greater part of the new buildings is devoted to the departments of physiology, pathology, toxicology, anatomy, and public health. The physiological department occupies more than half of the new buildings, and includes a large lecture theatre, accommodating 350 students, with preparation and diagram rooms adjacent to it, and a research laboratory fitted with the necessary apparatus for the use of advanced students, research scholars, or practitioners of medicine undertaking the investigation of some special subject. In the new pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. In the toxicological department there is a large laboratory, capable of accommodating 50 students, lighted from both sides and also from the roof, completely equipped with all that is necessary for the practical teaching of toxicology; also a small laboratory for private research, containing the apparatus and fittings necessary for investigations in toxicological chemistry. In the public health department suitable laboratory accommodation is provided for the study of sanitary chemistry, physics, and practical bacteriology in the departments of chemistry and physics and in that of pathology. A large room is provided in the new buildings for a museum of apparatus, models, plans, and other sanitary appliances for the practical instruction of the students, together with a special library of works on State medicine, hygiene, vital statistics, and sanitary engineering. In addition, a large lecture theatre for general purposes, accommodating 250 students, has been provided, and the existing accommodation for students is supplemented by the provision of a larger common room. The more strictly practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary, as well as in a fever hospital, a lunatic asylum, and a convalescent home. Medical and Surgical Clinical Classes are conducted in the infirmary, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis, in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary. The following entrance scholarships are offered for award to persons of either sex proposing to enter a medical course of study at the University:—Seaton—One of £40, tenable for two years. Subjects: Greek and Latin Translation at sight, and Prose Composition. Credit given for knowledge of Mathematics (Geometry and Algebra); Elements of English Language, Literature, and History; French and German. Rogers.—One of £40, tenable for two years. Subjects as in Seaton. Dalton.—Two of £40, tenable for two years. Subjects: Geometry (Euclid I.—IV., and VI., or the subjects thereof); Algebra (as far as the Binomial Theorem, inclusive), Plane Trigonometry (to Solution of Triangles); Elementary Analytical Geometry; Conic Sections. Credit given for knowledge of Classics, Elements of English Language, Literature, and History; French and German. Cartwright.—£35 per annum, tenable for three years. Subjects as in Dalton. Hulme.—£35, tenable for three years. Subjects: English Language (Grammatical Structure and Outlines of its History); English Literature (an essay on some subject of English literature); and Modern History (Outlines of English History and Geography); with at least two of the following: Latin (Translation at sight, Grammar, and Easy Composition); Greek (ditto); French (ditto); German (ditto). Credit given for knowledge of Mathematics (Geometry and Algebra). Dora Muir.—£25 per annum, tenable for three years (open to women only). Candidates may select such of the subjects as they desire from amongst those set for the other Entrance Scholarships. James Gaskill.—£35, tenable for two years. Subjects: Mathematics, Geometry (the substance of Euclid I.—IV. and VI.), Algebra (as far as the Binomial Theorem, inclusive), Plane Trigonometry (to Solution of Triangles), Elementary Mechanics, Chemistry. Credit given for knowledge of Classics, Elements of English Language, Literature, and History, and French and German. Manchester Grammar School.—£25 per annum, tenable for three years. The examinations for all these scholarships are held in the month of May. Kay-Shuttleworth (Sir James Phillips).—£30 per annum, tenable for three years. Subjects: Mathematics, Elementary Mechanics, Chemistry. Entrance Scholarships in Medicine.—One Scholarship in each year will be offered for proficiency in Arts and one for proficiency in Science. The Scholarships are of the value of £100 each, which will be set off against their fees as follows: £60 against the fees and £40 against the Infirmary fees. Platt Biological Scholarship.—£50 for one year, awarded to the candidate who shows the most promise and ability for prosecuting original research in Zoology and Botany. Dauntesey Medical Scholarships.—Two Scholarships of £35 each are open to all students preparing for a medical course who shall not have attended lectures or Laboratory courses on human anatomy or physiology, or a purely medical or surgical course in the University or any other Medical School in the United Kingdom. Candidates will be examined in Zoology, Botany, and Chemistry. Medals, are awarded on the results of the various class examinations at the end of each session. A Platt Physiological Scholarship of £50 a year for two years is offered annually to the competition of persons whether previously students of the University or not. Two Platt Exhibitions, of the value of £15 each, to be competed for by first and second year students in the class of Physiology, and a Sidney Renshaw Exhibition in Physiology of the value of £15 to be competed for by second year students in Physiology. A Professor Tom Jones Memorial Exhibition of the value of £25, a Dumville Surgical Prize of £15, a Turner Medical Scholarship of £20, and a John Henry Agnew Scholarship in Diseases of Children of £30 are offered annually for competition. A Professor Tom Jones Memorial Scholarship of £100 is awarded triennially, a Bradley Memorial Scholarship in Clinical Surgery of the value of £20 and Medical and Surgical Clinical Prizes, each of the value of 6 guineas, are open to competition each year for the best reports (with comments) of cases which have occurred in the wards of the infirmary.

MANCHESTER ROYAL INFIRMARY (292 beds).—Consulting Physicians: Dr. Henry Simpson and Dr. J. Dreschfeld. Consulting Surgeons: Mr. Walter Whitehead and Mr. James Hardie. Physicians: Dr. Graham Steell, Dr. Thomas Harris, Dr. J. S. Bury, and Dr. A. T. Wilkinson. Assistant Physicians: Dr. Ernest S. Reynolds, Dr. R. T. Williamson, and Dr. E. M. Brockbank. Pathologist: Dr. J. Lorrain Smith. Consulting Obstetric Physician: Dr. Lloyd Roberts. Gynæcological Surgeon: Dr. Archibald Donald. Surgeons: Mr. F. A. Southam, Mr. G. A. Wright, Mr. William Thorburn, and Mr. J. E. Platt. Assistant Surgeons: Mr. W. P. Montgomery, Mr. J. W. Smith, Mr. A. H. Burgess, and Mr. J. H. Ray. Ophthalmic Surgeon: Dr. Hill Griffith. Aural Surgeon: Dr. William Milligan. Anæsthetist: Mr. Alex. Wilson. Consulting Dental Surgeon: Mr. G. W. Smith. Dental Surgeon: Mr. W. A. Hooton. Pathological Registrar: Dr. W. B. Anderton. Medical Registrar: Dr. A. Ramsbottom. Surgical Registrar: Mr. A. E. Johnson. Director of the Clinical Laboratory: Dr. E. B. Leech. Assistant Directors of the Clinical Laboratory: Dr. G. E. Loveday and Dr. A. Ramsbottom. Administrators of Anæsthetics: Mr. W. J. S. Bythell and Mr. A. F. Thompson. Assistant Medical Officer for Out-patients: Dr. W. R. Matthews. Assistant Surgical Officer for Out-patients: Mr. E. H. Cox. Medical Officer for Home Patients: Dr. George Ashton. General Superintendent and Secretary: Vacant. The Winter Session commences Oct. 1st.

THE ROYAL HOSPITAL, PORTSMOUTH (founded 1847).—The number of beds is 132. During the year 1905 there were 1414 in-patients and 11,583 out-patients. Honorary Physicians: Dr. John Phillips and Dr. O. C. Claremont. Surgeons: Dr. J. Ward Cousins, Dr. A. Lloyd Owen, and Mr. Henry Rundle, F.R.C.S. Honorary Anæsthetist: Dr. W. J. Essery. Honorary Assistant Physicians: Dr. W. P. McEldowney, Dr. L. Cole-Baker, and Dr. J. T. Leon. Honorary Assistant Surgeons: Mr. C. P. Childe, F.R.C.S., Mr. T. A. M. Forde, and Mr. A. B. Wright. The hospital is a preparatory School of Medicine and Surgery; the attendance of pupils at this hospital is recognised by the Examining Boards. Particulars of the Secretary at the hospital.

UNIVERSITY OF SHEFFIELD.—FACULTY OF MEDICINE.—The Winter Session 1906–07 will commence in the new University buildings on Wednesday, Oct. 3rd. The University was opened on July 12th, 1905, by His Majesty King Edward VII. The plan of the buildings is that of four blocks inclosing a quadrangle 154 feet by 110 feet. The Medical department occupies the entire north wing, overlooking the quadrangle on one side and Weston Park on the other. The department of Anatomy occupies about two-thirds of the upper ground floor together with a portion of the lower ground floor, where the reception and storage room is situated. The dissecting room has been designed and equipped to meet all the modern requirements of the student of anatomy; it is well lighted by six large plate-glass windows and is floored with non-porous polished oak blocks. The lecture theatre will accommodate 50 students and is provided with a lantern of modern type illuminated by the electric arc. The anatomical museum has a gallery which is set apart for morphological and anthropological specimens. The floor space affords accommodation for bones, models, spirit specimens, and dissections. Research laboratories are provided for the professor and demonstrators. The Physiological department occupies the first floor. In the general laboratory, a large well-lighted room, accommodation is provided for microscopical work at a bench running the full length of the laboratory beneath the windows. The space behind is not occupied by the customary long fixed benches but by separate moveable tables, each equipped for the purposes of experimental work. This arrangement allows the students to work either singly or in small groups. The fixed equipment of the room is designed to provide power for machinery, gas, electricity, and water wherever the tables may be situated. The second laboratory, for chemical physiology, is fitted with benches, fume cupboards, &c. In addition, a considerable portion of this room is devoted to, and equipped for, work of a more advanced type. Opening into this laboratory are a balance room and two rooms fitted for photography, spectroscopy, &c. Opportunities are afforded for research work in three special rooms: one, beautifully lighted by windows in two of its walls, is equipped for general research; another, which can be darkened when required, for optical work and photographic recording; and a third, in the basement of the building, is provided with the solid pillars, &c., necessary for work with delicate instruments requiring great stability. In the lecture theatre a large amount of space has been left for the demonstration of experiments and is equipped with the larger pieces of apparatus necessary for such work. The Pathological department occupies the whole of the upper storey, and in this, as well as in the Anatomical and Physiological departments, no space is taken up by corridors, the plan being for the majority of the rooms to lead from one to the other. The students' laboratory, a large and lofty room, is equipped with every modern appliance for microscopical and bacteriological work. An incubating room, built into the centre of this department, is a special feature; it is so arranged that it may be kept at a constant temperature, thus replacing the ordinary incubating ovens. There is a spacious museum, with gallery, lighted from the roof and from windows on the south wall. The professor and demonstrators are provided with several research laboratories. The photographic and store rooms are situated in the roof and turrets. Well-furnished lecture rooms for other subjects and the materia medica museum are situated on the upper ground floor; and the library of the Medico-Chirurgical Society, to which students have access, is on the floor beneath, on the level of the quadrangle. Hospital practice, medical and surgical, is taken out at the Royal Infirmary and the Royal Hospital which are within easy distance of the University.

The Royal Infirmary contains 255 beds with special Ophthalmic, Dermatological, and Aural departments. The Royal Hospital contains 160 beds, including ophthalmic wards. There are also special out-patient departments for diseases of the skin, nose and ear, eye, throat, and mental diseases. At both these institutions clinical clerkships and dresserships, casualty and ophthalmic dresserships, and post-mortem clerkships are allotted each three months. Clinical lectures are delivered each week during the winter months by members of the staffs, and daily systematic teaching is given in the wards and out-patient rooms at stated times. By a joint arrangement students taking out hospital practice are able for the single fee to attend the practice of either or both of the institutions as they choose. Fees: Hospital practice, £36 15s. in one payment; or £18 18s. on commencing hospital practice and £18 18s. twelve months later. Composition fee for lectures and practical courses, £80, payable in three instalments—viz., £24, £28, £28. For practical midwifery and diseases of women students attend the Jessop Hospital for Women (80 beds), which has recently been considerably enlarged; for infectious diseases the City Fever Hospitals; and for mental diseases the South Yorks Asylum. Special courses are not included in the composition or hospital fees. In connexion with the University there is a complete dental department, which is fully recognised by the various examining bodies, and students are able to get their full curriculum here. The practical work is done at the dental department of the Sheffield Royal Hospital, where, in addition to the fully-equipped out-patient dental rooms, there is a very complete practical dental mechanical room and laboratory fitted with electric light and every modern convenience. Each student has his own bench and fittings provided. The courses of instruction for the D.P.H. examinations are recognised by the Royal College of Surgeons, Cambridge University, and the University of London. Persons of either sex are admitted to the degree of the University.

Prizes, &c.—An entrance scholarship of the approximate value of £100 is awarded on the results of the Matriculation Examination of the Joint Matriculation Board held in July. A gold medal for Clinical Medicine and Surgery is offered by the Clinical Committee. Kaye Scholarship (being the interest on £900) for second-year students natives of Sheffield is awarded annually under certain regulations. Medals and certificates are awarded annually.

JESSOP HOSPITAL FOR WOMEN, Gell-street, Sheffield.—The hospital contains 54 beds for gynæcological cases and 18 for obstetric cases. A staff of midwives connected with the hospital attend lying-in women at their own homes, and, in case of need, are assisted by the members of the medical staff. A 12 weeks' course of instruction (theoretical and practical) is also provided for resident and non-resident pupil midwives, the institution being approved by the Central Midwives Board as a training centre. Out-patients are attended daily. Students can attend the practice of the hospital and be supplied with cases of midwifery. Communications should be addressed to the Secretary, A. W. Warner, York Chambers, York-street, Sheffield.

ROYAL DEVON AND EXETER HOSPITAL, Exeter.—Medical and Surgical Staff: Consulting Physician: Dr. Drake. Physicians: Dr. H. Davy and Dr. William Gordon. Surgeons: Mr. J. D. Harris, Mr. E. J. Domville, Mr. Charles E. Bell, and Mr. A. C. Roper. Medical Registrar and Pathologist: Mr. Reginald V. Solly. Surgeon Dentist: Mr. J. M. Ackland. Anæsthetists: Mr. Henry Andrew and Mr. Brennan Dyball The hospital contains 200 beds (*including special children's wards*) and has a good library, museum, dissecting room, and post-mortem room. Attendance on the practice of this hospital qualifies for all the examining boards. Arrangements can be made by which students can attend Midwifery on application to the House Surgeon. There is also a Private Nursing Staff attached to the hospital. For particulars as to fees, &c, apply to the Matron. A new wing was added in 1897. Arrangements may be made by which gentlemen in practice desiring to increase their qualifications may have the use of the museum and library and other facilities and by which students may attend midwifery. A new Operating Theatre was opened in 1906 (the gift of Mrs. Nosworthy of Newlands, Dawlish, Devon).

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Honorary Consulting Physician: Dr. R. Saundby. Honorary Consulting Surgeon: Mr D C. Lloyd-Owen. Surgeons: Mr. H. Eales, Mr. E. W. Wood-White, and Mr. J. Jameson Evans. Dental Surgeon: W. T. Madin, L.D.S. Anæsthetist: Dr. S. W. Haynes. This hospital possesses 105 beds, and there is an average daily attendance of out-patients of 205. This institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an ophthalmic hospital at which clinical instruction in ophthalmology may be received. Students attending for a period of three months will be granted certificates which will qualify for the University and Conjoint Board examinations.

WEST OF ENGLAND EYE INFIRMARY, Exeter —Physician: Dr. William Gordon Surgical Staff: Mr. A. C. Roper and Mr. Ransom Pickard. Assistant Surgeon: Mr. Leonard R. Tosswill. Secretary: Mr. Sidney E. Whitton. The infirmary contains 64 beds. Students of the Exeter Hospital can attend the practice of the Eye Infirmary. Patients for the year ending Michaelmas, 1905, 2757.

KENT AND CANTERBURY GENERAL HOSPITAL.—The hospital contains 104 beds. Pupils of the staff are admitted to the practice of the hospital and have the use of the library of the East Kent and Canterbury Medical Society for £7 7*s.* Operation day, Thursday, 11 A.M. Physicians: Dr. Harold Wacher and Dr. M. T. Williams. Consulting Surgeons: Mr. James Reid and Mr. Frank Wacher. Surgeons: Dr. T. Whitehead Reid, Mr. J. Greasley, Mr. Sidney Wacher, and Mr. Z. Prentice. Dentist: Mr. R. S. N. Faro. Secretary: Mr. Arthur J. Lancaster. Over 700 in-patients, 2000 out-patients and casualties, and 400 dental cases are attended in a year.

NORFOLK AND NORWICH HOSPITAL (220 beds).—Non-resident pupils admitted. Fees: For three months, £3 3*s.*; for six months, £5 5*s.*; as permanent pupil, £8 8*s.* Consulting Physician: Sir P. Eade. Consulting Surgeons: Dr. Beverley, Mr. H. S. Robinson, and Mr. O. Williams. Physicians: Dr. Barton, Dr. Burton-Fanning, and Dr. Long. Surgeons: Mr. S. H. Burton, Mr. D. D. Day, and Mr. H. A. Ballance. Assistant Surgeons: Mr. T. H. Morse and Mr. E. W. Everett. Dental Surgeon: Mr. H. F. White. Electro-Therapeutist: Dr. A. J. Cleveland. Secretary: Mr. F. G. Hazell.

NORTHAMPTON GENERAL HOSPITAL (established 1743; rebuilt 1793).—Two new wings were opened in 1904 and the old buildings entirely renovated and re-arranged. The number of beds is 166. Non-resident pupils are received and have every opportunity of acquiring a practical knowledge of their profession. The fee is £10 10*s.* Pupils can be received at any time.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-on-Trent.—The New Infirmary, opened in 1869, is built on the pavilion plan. has accommodation for over 200 patients, including Children's wards, special Ovarian wards, and a special department for the treatment of Diseases of the Eye. In-patients last year, 2162; out-patients, 13,920. The attendance of pupils at this infirmary is duly recognised by all the examining boards; and there are unusual facilities for acquiring a practical knowledge of the profession. Physicians: Dr. H. Nicholls and Dr. S. King Alcock. Surgeons: Dr. G. Stokes Hatton and Dr. Wheelton Hind. Assistant Physician: Mr. John Russell. Assistant Surgeons: Mr. Reginald Alcock and Dr. W. C. Allardice. Ophthalmic Surgeon: Mr. Herbert H. Folker. Assistant Ophthalmic Surgeon: Mr. R. H. Dickson. Dental Surgeon: Mr. A. Baines. Secretary and House Governor: Mr. Albert E. Boyce, F.C.I.S., A L C.A.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—There are 230 beds. It is recognised by the University of London, the Royal Colleges of Physicians and Surgeons, and other examining boards. The in-patients number 2550; the out-patients 19,985. The Operating Theatre, Pathological Laboratory, and Post-mortem room are new and well equipped. Special departments for Children, Gynæcology, Ear, Throat, and Nose Diseases, Electro-therapeutic and X Ray departments. There is an excellent library. The resident officers are a house physician, house surgeon, assistant house physician, and assistant house surgeon. Pupils are allowed to witness the whole of the practice of the hospital and to be present at operations and have every opportunity of acquiring a practical knowledge of their profession. Fees: £3 3*s.* a quarter, £10 10*s.* the first year, and £5 5*s.* subsequent years. A course of Practical Pharmacy is given by the dispenser. Fee £3 3*s.* for three months. Applications should be made to the Secretary of the Medical Committee Staff.

Staff.—Consulting Physician: Dr. W. Millington. Consulting Surgeon: Mr. C. A. Newnham. Physicians: Dr. H. Malet and Dr. C. A. MacMunn. Surgeons: Mr. J. O'B. Kough, Mr. W. H. T. Winter, Mr. E. Deanesly, and Mr. A. H. Hunt. Assistant Physician: Dr. J. A. Codd. Assistant Surgeons: Mr. W. F. Cholmeley and Mr. H. Dent.

SUSSEX COUNTY HOSPITAL (190 beds).—During the year 1905, 2145 in-patients have been treated. The total number of out-patient attendances on the books during 1905 was 39,625. This hospital affords ample facilities for students, possessing a large out-patient department, a library, and a well-appointed clinical research and bacteriological department. The hospital does not take resident pupils, but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee, not exceeding 20 guineas, as the Committee of Management shall direct.

Staff.—Consulting Physicians: Dr. Rutter, Dr. Hollis, Dr. Branfoot, and Dr. Mackey. Physicians: Dr. F. F. G. Dill, Dr. Hobhouse, and Dr. Maynard. Assistant Physicians: Dr. W. Broadbent, Dr. Hall, and Dr. Bailey. Consulting Surgeons: Mr. F. A. Humphry and Mr. H. P. Blaker. Surgeons: Mr. W. Furner, Mr. T. J. Verrall, and Mr. R. F. Jowers. Assistant Surgeons: Mr. F. J. Paley, Mr. A. Buck, and Mr. T. H. Ionides.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury and Gartside-street, Manchester.—The hospital contains 168 beds and 24 in the Convalescent Home, St. Anne's-on-Sea. The medical staff visit the hospital daily at 10 A.M. Clinical instruction is given by the medical staff at the Hospital and Dispensary. Out-patients are seen daily at 9 A.M. at the Dispensary, Gartside-street, Manchester. Physicians: Dr. Ashby, Dr. Hutton, and Dr. Heywood. Surgeons: Mr. J. Howson Ray, Mr. E. D. Telford, and Mr. C. Roberts *Honorary Consulting Surgeon: Mr G. A. Wright. Honorary* Consulting Pathologist: Professor R. Lorrain Smith. Anæsthetist: Mr. Harold Snape. Honorary Aural Surgeon: Mr. F. H. Westmacott. Pathologist: Dr. W. Mair. Honorary Dental Surgeon: Mr. Barron J. Rodway. Resident *Medical Officers*: Mr. J. L. Falconer and Mr. R. T. Slinger. Medical Officers at the Dispensary: Dr. C. P. Lapage and Mr. H. H. Rayner. During 1905 there were 1910 in-patients and 23,899 out-patients were under treat ment at the Dispensary. Secretary: Mr. H. J. Eason.

THE MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park place, Cheetham-hill-road, Manchester.—The hospital contains 70 beds. Out-patients are seen daily from 8.30 to 10 A.M. Honorary Consulting Physicians: Dr. W. N. Maccall, Dr. S. Holgate Owen, and Dr. T. C. Railton. Honorary Consulting Surgeons· Mr. James Hardie and Mr. Frederick A. Southam. Honorary Physician for Women: Dr. Samuel Buckley. Honorary Surgeon for Women: Mr. T. Arthur Helme. Honorary Surgeon for Children: Mr. Arnold W. W. Lea. *Honorary Physician: Dr. J. J. Cox.* Honorary Assistant *Physician*: Dr. W. E. Fothergill. Honorary Assistant Physicians for Children: Dr. C. H. Melland and Dr. C. C. Heywood. Honorary Assistant Surgeon for Children: Mr. Charles Roberts. Honorary Anæsthetists: Mr. G. A. Barrow and Dr. H. R Clarke. Pathologist: Dr. J. Garvie McNaughton. Assistant Medical Officers: Dr. A. W. Lilley and Mr. R. W. Walsh. Honorary Dentist: Mr. W. A. Hooton. House Surgeon: Mr J. Bowen Jones.

NEWCASTLE-ON-TYNE INFIRMARY FOR DISEASES OF THE EYE.—Staff Surgeons: Mr. A. S. Percival and Mr. H. P. Bennett. Assistant Surgeons: Mr. Andrew Messer and Mr. W. J. Penfold. Honorary Consulting Surgeon: Mr. Frederick Page. Honorary Anæsthetists: Dr. O. W. Ogden and Mr. T. H. Livingstone. Matron: Miss C. Crump. Secretary: Mr. Richard Smith, 61, Westgate-road, Newcastle-on-Tyne. Out-patients 6085 annually; in-patients 335. Instruction is given daily from 11 to 1.

LEICESTER INFIRMARY.—Instruction in the infirmary for first-year students is duly recognised by the various examining bodies. At the General Infirmary there are 158 beds and at the Children's Hospital 42; total 200.

SCOTLAND.

MEDICAL SCHOOLS WITH FULL CURRICULUM.[1]

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects. It is within the limit to say that about 1200 students avail themselves each session of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of London, Edinburgh, and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Public Boards. A post graduate vacation course commences in the last fortnight of September.

The anatomy rooms and laboratories will open on Monday, Oct. 1st. On Tuesday, Oct. 16th, the lectures will commence.

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school, in addition to the class of Practical Materia Medica and the classes of Clinical Medicine and Clinical Surgery. The regulations require that the fee for any class taken for graduation in Edinburgh shall be the same as that for the corresponding class in the University. The whole education required for graduation at the University of London may be taken in this school.

The appointment of Resident Physician to the wards in the Royal Infirmary under the care of the Ordinary Physicians is open to those members of their clinical class who have held the office of clerk in their wards for at least six months. Six Residentships are appointed for a period of six months each. Resident Surgeons are also appointed by the Ordinary Surgeons to the Hospital. In all respects the students are taught under regulations similar to those at the University of Edinburgh and the other Universities of Scotland, and they receive similar certificates at the close of each session. Moreover, the University and College authorities in Edinburgh and the governing board of the school call upon each recognised lecturer to supply them at the close of each session with a statement giving the number of students attending the class, the number of lectures or prelections delivered during the session, the class examinations held, and the general mode of conducting the class. The courses on special non-qualifying subjects have for the last quarter of a century formed a marked feature of the school. Indeed, such medical subjects could be studied in Edinburgh only in this school until lately, when the University of Edinburgh appointed from the school lecturers on Diseases of the Eye, Insanity, and Diseases of Children to take charge of classes intra-murally. A list of the classes and lecturers will be found below. Special courses of instruction for dental students and for women are also included in the curriculum of this school. The classes of the school are conducted in several separate buildings, such as at Surgeons' Hall, Minto House, Nicolson-square, and the New School, Bristo-street.

Lecturers and fees.—Winter Session: Anatomy, Practical Anatomy, and Demonstrations, Dr. Ryland Whitaker (£3 5*s.* and £4 4*s.*); Chemistry (Practical, &c.), Mr. King, Mr. Gemmell, Mr. Kerr,* and Dr. T. W. Drinkwater; Physiology (Institutes of Medicine) —— (£3 5*s.*); General Pathology, &c., Dr. Russell, Dr. Shennan, and Dr. Stuart McDonald (£3 5*s.*); Biology, Mr. Malcolm Laurie (£3 5*s.*); Zoology, Mr. Malcolm Laurie; *Physics, Dr. Dawson Turner (£3 3s.); Bacteriology*, Dr. Taylor Grant, Dr. Theodore Shennan, and Dr. Stuart McDonald; Practice of Physic, Dr. James, Dr. Bramwell, Dr. Gibson, Dr. Bruce, Dr. Philip, and Dr. R. A. Fleming (£3 5*s.*); Surgery, Mr. Caird, Mr. Hodsdon, Mr. Thomson, Mr. Wallace, Mr. Miles, and Mr. Scot Skirving (£3 5*s.*); Materia Medica, &c., Dr. Craig† and Dr. F. D. Boyd (£3 5*s.*); Midwifery, &c., Dr. Hart, Dr. Haultain, Dr. Ballantyne, Dr. Fordyce, Dr. Elsie M. Inglis, and Dr. Campbell (£3 5*s.*); Medical Jurisprudence, &c., Dr. Aitchison Robertson (£3 5*s.*); Public Health, Dr. Aitchison Robertson and Dr. C. J. Lewis; Hospital Practice (Edinburgh Royal Infirmary): Physicians, Dr. James, Dr. Bramwell, Dr. Gibson, and Mr. Brewis for Gynæcology; Surgeons, Dr. MacGillivray, Mr. Cotterill, and Mr. Cathcart (perpetual ticket, £12); Clinical Medicine, Dr. James, Dr. Byrom Bramwell, and Dr. Gibson (£3 5*s.*); Clinical Surgery, Dr. MacGillivray, Mr. Cotterill, and Mr. Cathcart (£3 5*s.*); Diseases of the Chest, Dr. Philip† and Dr. Lovell Gulland (£2 2*s.*); Vaccination, Dr. Buist† and Dr. Cadell (£1 1*s.*); Diseases of Ear, Nose, and Throat, Dr. Logan Turner and Dr. J. Malcolm Farquharson (£2 2*s.*); *Diseases of the Eye, Dr. Sym,*† and Dr. A. H. H. Sinclair (£2 2*s.*); Gynæcology, Dr. Haig Ferguson and Dr. Elsie M. Inglis (Systematic), Dr. Brewis, and Dr. J. Haig Ferguson (Clinical), and Dr. *Berry Hart (Advanced)* (£2 2*s.*); Diseases of the Blood, Dr. G. Lovell Gulland; Neurology, Dr. J. J. Graham Brown (£2 2*s.*); Diseases of the Chest, Dr. Philip and Dr. Lovell Gulland *(£2 2s.)*; *Medical* Electricity, Dr. Dawson Turner (£2 12*s.* 6*d.*); Tropical Diseases, Major D. G. Marshall, I.M.S. (£2 2*s.*). Summer Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£2 2*s.*); Practical Physiology —— (£3 3*s.*); *Biology, Mr. M. Laurie ‡ and Miss Newbigin (£3 3s.)*; Practical Chemistry and Analytical Chemistry, Mr. King, Mr. Gemmell, Mr. Kerr, and Mr. Drinkwater §; Practical *Bacteriology*, Dr. *Shennan*, Dr. Taylor Grant, and Dr. Stuart McDonald; Materia Medica, Dr. Craig and Dr. F. D. Boyd; Diseases of the Eye, Dr. Sym and Dr. A. H. H. Sinclair (£2 2*s.*); Medical *Psychology* and Insanity, Sir J. Batty Tuke and Dr. Robertson (£2 2*s.*); Medical Jurisprudence, Dr. Aitchison Robertson; Public Health, Dr. C. J. Lewis *(£2 2s.)*; *Gynæcology, Dr.* Brewis and Dr. Ballantyne (£2 2*s.*); Midwifery, Dr. Ferguson, Dr. Ballantyne, Dr. Fordyce, Dr. Elsie M. Inglis, and Dr. Campbell (£3 5*s.*); Operative Surgery, Mr. *Caird*, Mr. Hodsdon, Mr. Alexis Thomson, Mr. David Wallace, and Mr. Alex. Miles (£3 3*s.*); Practical Pathology, Dr. Russell, Dr. Shennan, and Dr. Stuart McDonald (£3 3*s.*); *Physics*, Dr. Turner‡ (£3 3*s.*); Practical Medicine and Physical Diagnosis, Dr. Philip, Dr. Fleming, and Dr. Lovell Gulland (£3 3*s.*); Practice of Medicine, Dr. James, Dr. Bramwell, and Dr. Gibson (£2 2s.); Vaccination, Dr. Buist and Dr. Cadell (£1 1s.); Neurology, Dr. Bruce and Dr. Graham Brown; Diseases of Ear, Nose, and Throat, Dr. Logan Turner and Dr. Malcolm Farquharson (£2 2s.); Tropical Diseases, Major D. G. Marshall, I.M.S. (£2 2s.); Medical Electricity, Dr. Dawson Turner.

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[1] For Scholarships see p. 601 et seq.

Special Classes for Women, Winter Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£4 4s.); Chemistry (Lectures and Practical), Mr. J. Kerr (£3 5s. and £3 3s.); Practice of Physic, Dr. Philip (£3 5s.); Surgery, Mr. J. W. Dowden (£3 5s.); *General Pathology*, Dr. Russell (£3 5s.); Physiology (Institutes of Medicine) —— (£3 5s.); Materia Medica, &c., Dr. Craig (£3 5s.); Clinical Medicine, Dr. Alexander Bruce, Royal Infirmary (£3 5s.); Clinical Surgery, Mr. Caird, Royal Infirmary (£3 5s.); Physics, Dr. Dawson Turner (£3 3s.); Biology, Miss Newbigin (£3 3s.); Vaccination, Dr. Buist and Mr. Cadell (£1 1s.); Practical Gynæcology, Dr. Brewis (£2 2s.); Diseases of the Eye, Dr. W. G. Sym; Bacteriology, Dr. J. Taylor Grant; Fevers, City Hospital. Summer Session: Practical Anatomy, Dr. Ryland Whitaker (£2 2s.); Practical Chemistry, Mr. J. Kerr (£3 3s.); Materia Medica, &c., Dr. Craig (£3 3s.); Operative Surgery and Surgical Anatomy, Mr. J. W. Dowden (£3 3s.); Materia Medica and Therapeutics, Dr. Wm. Craig (£3 3s.); Medical Jurisprudence and Public Health, Dr. Aitchison Robertson and Dr. C. J. Lewis (£3 5s.); Clinical Medicine, Dr. Alexander Bruce; Clinical Surgery, Mr. Caird, Royal Infirmary (£3 5s.); Practical Physiology and Histology —— (£3 3s.); Practical Pathology, Dr. Russell (£3 3s.); Biology, Miss Newbigin (£3 3s.); Physics, Dr. Dawson Turner (£3 3s.); Ophthalmology, Dr. A. H. H. Sinclair (£2 2s.); Insanity, Sir J. Batty Tuke and Dr. G. M. Robertson (£2 2s.); Practical Gynæcology, Dr. Brewis (£2 2s.); Practical Medicine, Dr. Philip and Dr. G. Lovell Gulland; Vaccination, Dr. Buist; Tropical Diseases, Major Marshall; Medical Electricity, Dr. Dawson Turner.

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, including the fees for the Joint Examinations, is about £115, payment of which is distributed over the period of study.

Further particulars regarding the school, also its calendar, may be had on application to Mr. R. N. Ramsay, the Secretary and Registrar, 27, Forrest-road, Edinburgh.

* Lectures, £3 5s.; Practical, £3 3s.; Analytical, £2 a month, or £5 for three months. † Also in Summer Session. ‡ Also in Winter Session. § Practical, £3 3s.; Analytical, £2 a month, or £5 for three months.

N.B.—Where two or more lecturers appear as teaching the same subjects their lectures are not conjoined, but each gives an independent course.

ANDERSON'S COLLEGE MEDICAL SCHOOL, Dumbarton-road, Glasgow.—This medical school was founded in the year 1800. It has given 15 *professors* to the University of Glasgow. The following courses are given, which qualify for all the licensing boards and for the Universities of London, Durham, Ireland, Edinburgh, and Glasgow (the latter two under certain conditions):—In winter: Anatomy, Professor A. M. Buchanan; Chemistry, Professor J. Robertson Watson; Physics, Professor Peter Bennett; Botany, Professor B. G. Cormack; Zoology, Professor Geo. Bell Todd; Physiology: Professor Robert Fullarton; Materia Medica, Professor Hugh M'Laren; Midwifery, Professor John Edgar; Surgery, Professor J. H. Nicoll; Practice of Medicine, Professor R. Barclay Ness; Ophthalmic Medicine and Surgery, Dr. T. Spence Meighan; Aural Surgery, Dr. J. Galbraith Connal; Diseases of Throat and Nose, Dr. John Macintyre; Public Health (Laboratory Course), Professor Carstairs C. Douglas. In summer: Anatomy, Practical Anatomy, and Osteology; Practical Chemistry; Botany and Practical Botany; Zoology and Practical Zoology; Practical Physiology; Practical Materia Medica and Pharmacy; Medical Jurisprudence and Hygiene (Professor Carstairs C. Douglas); Diseases of Women and Children (Professor Edgar); Operative Surgery; Ophthalmic Medicine and Surgery; Aural Surgery; Mental Diseases (Dr. John Carswell); and Public Health (Lecture Course). The Chemical Laboratory is open daily from 10 to 6. The Dissecting-room is open in winter from 9 A.M. to 6 P.M., and in summer from 6 A.M. to 6 P.M. The students are assisted in their dissections by the Professor and Demonstrators, by whom frequent examinations and demonstrations on the parts dissected are conducted. The supply of subjects for dissection is ample, and students are consequently provided with parts as soon as they may be ready for them. The Dissecting-room is provided with a complete series of dissected specimens, mounted in plaster of Paris, illustrating the anatomy of the human body. Candidates for the Licence in Dental Surgery can obtain the full medical curriculum in Anatomy, Chemistry, Physiology, Surgery, Practice of Medicine, and Materia Medica. The courses special to Dentistry are conducted at the Glasgow Dental Hospital and School.

The new buildings are situated in Dumbarton-road, immediately to the west of the entrance to the Western Infirmary, within two minutes' walk of it, and four minutes' walk of the University. Extensive accommodation is provided for Practical Anatomy, Practical Chemistry, Practical Physiology, Practical Pharmacy, and Operative Surgery. There are also provided a large reading-room and students' recreation-room.

Fees.—For each course of Lectures (Anatomy, Ophthalmic Medicine and Surgery, Aural Surgery, Diseases of Throat and Nose, and Mental Diseases and Public Health excepted), first session, £2 2s.; second session (in Anderson's College), £1 1s.; afterwards free. For Practical Classes (except Anatomy, Operative Surgery, and Public Health)—viz., Chemistry, Botany, Zoology, Physiology, and Pharmacy—first session, £2 2s.; second session, £2 2s. Reduced joint fees in Zoology and in Botany, for Lectures and Practical Class when taken in same summer session, £3 3s.; for either course separately, £2 2s. Anatomy Class Fees: Winter, first session (including Practical Anatomy), £4 4s.; second session (including Practical Anatomy), £4 4s.; third session, £2 2s. Summer, Lectures and Practical Anatomy, £2 12s. 6d.; Lectures alone, £1 11s. 6d.; Practical Anatomy *alone*, £1 11s. 6d.; Osteology and Practical Anatomy, £2 12s. 6d.; Osteology alone, £1 11s. 6d.; Operative Surgery, £2 12s. 6d. Ophthalmic Medicine and Surgery (including Hospital Practice), Aural Surgery, Diseases of Throat and Nose, and Mental Diseases, £1 1s. each course. Public Health Laboratory, six months, £11 11s.; with lectures, £12 12s. Matriculation Fees: For the year, 10s.; for one class in winter session alone, 5s.; for summer session alone, 5s.

Western Infirmary.—Fees: For Hospital Attendance, £10 10s.; afterwards free. For Clinical Instruction, winter, £3 3s.; summer, £2 2s. Pathology: systematic, £4 4s.; practical, £3 3s. Vaccination fee, £1 1s.

Royal Infirmary.—Fees: Hospital Practice and Clinical Instruction, first year, £10 10s.; second year, £10 10s.; afterwards free. Six months, £6 6s.; three months, £4 4s. Pathology, both courses, £4 4s. Vaccination Fee, £1 1s.

Attendance at the dispensaries of the Western and Royal Infirmaries is included in the *hospital fee.*

Maternity Hospital.—Fee for six months, £3 3s.

Royal Hospital for Sick Children.—Fee for one year, £1 1s.

Eye Infirmary.—Fee: Hospital Practice and Clinical instruction, including Lectures at the College, six months, £1 1s.

Lock Hospital.—£1 1s.

Fever Hospital, Belvidere or Ruchill.—Fee, £1 1s.

Hospital for Skin Diseases.—Fee, £1 1s.

The Carnegie Trust extends its benefactions to students at Anderson's College Medical School. Full particulars may be obtained from Mr. W. S. McCormick, the Carnegie Trust Offices, Merchants' Hall, Edinburgh.

Certificates of attendance on the lectures at Anderson's College Medical School are received by the Universities of London, Durham, Ireland, Edinburgh, and Glasgow (the latter two under certain conditions); by the Royal Colleges of Physicians of London and Edinburgh; by the Royal Colleges of Surgeons, England, Edinburgh, and Ireland; by the Royal College of Physicians of Ireland; by the Faculty of Physicians and Surgeons of Glasgow; by the Society of Apothecaries, London; and by the Army, Navy, and East India Boards. The courses of Laboratory Instruction and Lectures in Public Health are recognised by the Scottish Colleges; by the Royal College of Physicians and the Royal College of Surgeons, Ireland; and by the University of Cambridge. Communications relating to the Medical School to be addressed to the Secretary of the Medical Faculty, Anderson's College Medical School, Dumbarton-road, Partick, Glasgow. Communications relating to the Preliminary Examination in General Education to be addressed to Mr. Alexander Mackay, Educational Institute Office, 40, Princes-street, Edinburgh. Communications relating to the Triple Qualification to be addressed to Mr. Alexander Duncan, LL.D., Faculty Hall, 242, St. Vincent-street, Glasgow. Communications relating to the Dental School to be addressed to Mr. D. M. Alexander, 97, West Regent-street, Glasgow.

The *Kerr Bursary in Anatomy* (value about £10) is open to students of the Junior Anatomy Class during Winter Session 1906-1907.

The Winter Session will be opened on Thursday, Oct. 18th, 1906, and will be closed on Thursday, March 28th, 1907.

The Summer Session will be opened on Wednesday, April 24th, 1907, and will be closed on Friday, July 5th, 1907.

ST. MUNGO'S COLLEGE AND GLASGOW ROYAL INFIRMARY.—This College was incorporated in 1889. The Glasgow Royal Infirmary was founded in 1791. The Faculty of Medicine of the College occupies new buildings erected for the purposes of a medical school, adjoining and communicating with the Royal Infirmary. The Laboratories, Museums, and Lecture-rooms are equipped and adapted to modern scientific requirements. Recent additions consist of Public Health, Practical Zoology, and Bacteriological Laboratories. A complete electric light installation has been added and a powerful Educational Lantern has been provided for demonstration purposes. The Royal Infirmary, which is at the service of the College for the purpose of clinical and practical instruction, is one of the largest hospitals in the kingdom. The winter session will open on Thursday, Oct. 18th.

Psychological Medicine.—Practical instruction is given in Woodilee Asylum, situated within a short distance of Glasgow and having accommodation for 850 patients. Six resident clinical clerks are appointed annually. These clerkships are open to students attending St. Mungo's College.

Clinical Instruction in Fevers.—Classes are conducted by Dr. Johnston, Superintendent, at the City of Glasgow Fever Hospital, Ruchill, and Dr. Brownlee, Superintendent, at the City of Glasgow Fever Hospital, Belvidere.

Clinical Instruction in Midwifery.—The close proximity of the Maternity Hospital enables the Professor of Midwifery to conduct frequent clinical demonstrations there during the summer session.

The classes in St. Mungo's College qualify for the English, Scotch, and Irish Conjoint Boards and, under certain conditions, for the various universities, including the University of London. Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction, age (16 years), and Preliminary Examination, are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College.

The fee for each class is £2 2*s.*, except Zoology and Botany, joint fee £3 3*s.*, Anatomy, Winter Session, £4 4*s.*, Pathology, £4 4*s.*, Physics, £2 4*s.* 6*d.*, and certain extra classes for which the fee is £1 1*s.* The hospital fee (including clinical lectures) is £21 for a perpetual ticket. The classes in St. Mungo's College and in the Glasgow Royal Infirmary are for male students exclusively. The minimum fees for all the lectures, including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons amount to £65. Further particulars can be obtained from a syllabus which can be obtained free on application to the Dean, 86, Castle-street, Glasgow.

GLASGOW WESTERN MEDICAL SCHOOL.—This School is situated in University-avenue, close to the University and Western Infirmary. Lectures and Demonstrations are given on Chemistry, on Physics, on Anatomy, on Surgery, on Physiology, on Midwifery and Gynæcology, on Pathology, on Medicine, and on the Eye.

Class Fees.—For each course of Lectures the fee is £2 2*s.*, or in some cases £1 1*s.* There is no matriculation fee.

Lecturers: Winter Session.—Physics: Dr. Muirhead, Monday, Wednesday, and Friday, at 2 P.M.; Chemistry: Tuesday and Thursday, at 3 P.M.; Anatomy: Dr. Wright Thomson, Tuesday, Wednesday, and Friday, at 4.15 P.M.; Surgery: Dr. Edington, at 12 noon; Midwifery: Dr. Balfour Marshall, Monday, Wednesday, and Friday, at 2 P.M.; Medicine: Dr. Cowan, at 11 A.M.; Pathology: Dr. McLaren, Monday, Tuesday, Thursday, and Friday, at 3 P.M.; The Eye: Dr. Fergus, Monday and Thursday, at 4 P.M.

Summer Session.—Physics: Dr. Muirhead, Monday, Wednesday, and Friday, at 2 P.M.; Chemistry: Tuesday and Thursday, at 3 P.M.; Anatomy: Dr. Wright Thomson, Tuesday and Friday, at 3.15 P.M.; Operative Surgery: Dr. Edington, Tuesday, Wednesday, and Friday, at 1 P.M.; Gynæcology: Dr. Balfour Marshall, at 2 P.M.; Medicine: Dr. Cowan, at 8 A.M.; Pathology: Dr. McLaren, Monday, Tuesday, Thursday, and Friday, at 12 noon; Ophthalmology: Dr. Fergus, Monday and Thursday, at 11 A.M. and 3 P.M. Some of these classes qualify for graduation and for Scotch diplomas.

QUEEN MARGARET COLLEGE, University of Glasgow.—Queen Margaret College was founded in 1883 by the Glasgow Association for the Higher Education of Women (instituted in 1877), and handsome buildings and grounds near the University were presented to the College in 1884 by Mrs. John Elder. In 1890 a School of Medicine for women was added to its Arts Faculty. In 1892, when the Universities Commissioners issued an ordinance empowering the Scottish University Courts to make provision for the instruction of women, the Council of the College and Mrs. Elder transferred to the University the College, its buildings, grounds, and endowments, on condition that these should be devoted to the maintenance of University classes for women only. The College then became the women's department of the University of Glasgow; its classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College. The number of students enrolled in session 1905-1906 was 502, of whom 70 were studying medicine and the rest arts or science. The School of Medicine is a special feature of the College, and gives full preparation for the medical degrees of the University. In July, 1894, for the first time in the history of any Scottish university, women students graduated in medicine at the "capping" in Glasgow University. 117 women have now taken the degree of M.B., C.M. or M.B., Ch.B. of the University of Glasgow. Excellent facilities for clinical work are given in the Royal Infirmary and other hospitals. By a gift of £5000 granted for the purpose by the Bellahouston Trust the University Court was enabled to add to the College a large building for the study of Anatomy and Physiology, which was opened in October, 1895. The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine; and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries, scholarships, and fellowships. A house of residence for the students of the College coming from a distance was opened by the Queen Margaret Hall Co., Limited, in October of 1894. The winter session commences on Oct. 18th.

UNIVERSITY COLLEGE, Dundee.—This College is one of the constituent colleges of the University of St. Andrews. The new medical buildings, containing laboratories and workrooms for Anatomy, Physiology, Materia Medica, Pathology, Ophthalmology, Public Health, Medicine, Surgery, and Gynæcology will be opened in October. The complete medical curriculum can be taken in Dundee. For classes, fees, &c., see under University of St. Andrews.

ROYAL INFIRMARY, Dundee.—The Infirmary contains 300 beds, including special wards for the Diseases of Women, Children, Eye, Ear and Throat, and Obstetric cases. There is in addition an Extern Obstetric Department. There were during last year 15,549 out-patients and 6411 home patients. The Royal Infirmary offers exceptional facilities for practical work to students. *Appointments*: Four qualified Resident Medical Assistants are appointed every six months and one non-resident. Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department. There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery. Instruction is also given in Practical Pharmacy and Materia Medica and in Practical Dentistry. Further information can be obtained from Dr. Fraser, Medical Superintendent.

ROYAL AND DISTRICT ASYLUMS, Dundee.—Physician

Superintendent: Dr. William Tuach-Mackenzie. Lectures on Mental Diseases and clinical instruction in connexion with University College, Dundee (University of St. Andrews), are given during the Summer Session at University College and at the Royal and District Asylums by Dr. Tuach-Mackenzie. The course consists of 12 Lectures and 14 Clinical Lectures and Demonstrations. There are two paid qualified Resident Assistants and two unpaid Resident Clinical Assistants. Senior Medical Assistant: Dr. H. C. Martin. Junior Medical Assistant: Dr. J. Morris. Clinical Assistants: Mr. D. Buist and Mr. J. Robertson.

Aberdeen Royal Lunatic Asylum.—Contains, with hospital attached to main institution and Agricultural Branch, about 936 beds. Medical Superintendent: Dr. William Reid. Assistant Physicians: Dr. H. de M. Alexander, Dr. Reg. A. Forster, and Mr. John H. Moir. Clerk, Treasurer, and Factor: Mr. A. Scott Finnie, 343, Union-street, Aberdeen. Clinical instruction is given to students during three months in summer.

Aberdeen Royal Infirmary.—Contains 251 beds. Consulting Physician: Dr. P. Blaikie Smith. Physicians: Dr. Angus Fraser, Professor Finlay, and Dr. George M. Edmond. Assistant Physicians: Dr. John Gordon, Dr. A. H. Lister, and Dr. Ashley W. Mackintosh. Consulting Surgeons: Professor Alexander Ogston, Dr. J. C. O. Will, and Dr. J. Mackenzie Booth. Surgeons: Mr. J. S. Riddell, Mr. John Marnoch, and Mr. H. M. W. Gray. Assistant Surgeons: Dr. Kelly, Dr. Henry Peterkin, and Dr. Thomas S. Slessor. Ophthalmic Surgeon: Dr. C. H. Usher. Gynæcologist: Professor W. Stephenson. Pathologist: Professor David James Hamilton. Assistant Pathologist: Dr. G. M. Duncan. Dental Surgeon: Dr. J. M. P. Crombie. Anæsthetist: Dr. J. J. Y. Dalgarno. Assistant Anæsthetists: Dr. W. R. Pirie and Dr. Thos. Fraser. Medical Electrician: Dr. J. R. Levack. Assistant Medical Electrician: Dr. Clifford T. Bell. Dermatologist and Lecturer on Diseases of the Skin: Dr. J. F. Christie. Medical Superintendent and Clinical Registrar: Dr. William Sinclair. Clerk and Treasurer and Factor for the Hospital Lands: Mr A. Scott Finnie, 343, Union-street, Aberdeen. Medical session open on Oct. 16th.

HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

Royal Infirmary, Edinburgh.—This hospital has 900 beds and 60 cots for children, the average daily number of patients for 1905 being 828. Beds are set apart for clinical instruction by the professors of the University of Edinburgh. Courses of Clinical Medicine and Surgery are also given by the ordinary physicians and surgeons. Special instruction is given on Diseases of Women, Physical Diagnosis, Diseases of the Skin, Diseases of the Eye, the Ear, the Larynx, and the Teeth. Separate wards are devoted to Venereal Diseases, Diseases of Women, Diseases of the Eye, the Ear, Throat and Nose, and the Skin, and also to cases of Incidental Delirium or Insanity. There is a large and complete Medical Electrical and X Ray Department. Three wards are specially set apart for Clinical Instruction to Women Students. Post-mortem examinations are conducted in the anatomical theatre by the pathologist and his assistants, who also give practical instruction in Pathological Anatomy and Histology. The fees for hospital attendance are as follows—viz: Perpetual ticket, in one payment, £12; annual ticket, £6 6*s.*: six months, £4 4*s.*; three months, £2 2*s.*; monthly, £1 1*s.* Separate payments amounting to £12 12*s.* entitle the student to a life ticket. No fees are paid for any medical or surgical appointment. The appointments are as follows:—1. Resident physicians and surgeons are appointed and live in the house free of charge. The appointment is for six months but may be renewed at the end of that period by special recommendation. 2. Non-resident house physicians and surgeons and clinical assistants are appointed for six months. The appointment may be renewed for a like period by special recommendation. 3. Clerks and dressers are appointed by the physicians and surgeons. These appointments are open to all students and junior practitioners holding hospital tickets. 4. Assistants in the Pathological Department are appointed by the pathologist.

Staff: Medical Department.—Consulting Physicians: Dr. Claud Muirhead and Dr. J. O. Affleck. Consulting Gynæcologists: Sir J. Halliday Croom and Emeritus Professor Sir A. R. Simpson. Professors of Clinical Medicine: Sir T. R. Fraser, Dr. W. S. Greenfield, and Dr. John Wyllie. Ordinary Physicians and Lecturers on Clinical Medicine: Dr. Alex. James, Dr. Byrom Bramwell, Dr. Geo. Gibson, Dr. Alex. Bruce, and Dr. R. W. Philip. Gynæcologists: Dr. A. H. F. Barbour and Mr. N. T. Brewis. Physician for Disease of the Skin: Dr. Norman Walker. Medical Electrician: Dr. Dawson Turner. Assistant Physicians: Dr. William Russell, Dr. Murdoch Brown, Dr. G. Lovell Gulland, Dr. J. J. Graham Brown, Dr. Francis D. Boyd, and Dr. R. A. Fleming (*one vacancy*). Assistant Gynæcologists: Dr. F. W. N. Haultain, Dr. J. Haig Ferguson, and Dr. Wm. Fordyce. Assistant Physicians for Diseases of the Skin: Dr. Fred. Gardiner (*one vacancy*). Assistant Medical Electrician: Dr. Hope Fowler. Medical Registrar: Dr. A. Dingwall Fordyce.

Surgical Department.—Consulting Surgeons: Sir P. H. Watson, Mr. Joseph Bell, Mr. A. G. Miller, and Dr. P. H. Maclaren. Consulting Dental Surgeon: Dr. John Smith. Consulting Ophthalmic Surgeons: Dr. Argyll Robertson and Mr. George A. Berry. Consulting Aural Surgeon: Dr. P. McBride. Consulting Surgeon for Diseases of the Ear and Throat: Dr. R. McKenzie Johnston. Regius Professor of Clinical Surgery: Mr. Annandale. Professor of Surgery: Mr. Chiene. Ordinary Surgeons: Dr. C. W. MacGillivray, Mr. J. M. Cotterill, Mr. C. W. Cathcart, and Mr. F. M. Caird. Ophthalmic Surgeons: Dr. George Mackay and Dr. Wm. G. Sym. Surgeon to Ear and Throat Department: Dr. A. Logan Turner. Dental Surgeons: Mr. William Guy and Mr. J. H. Gibbs. Assistant Surgeons: Mr. Hodsdon, Mr. D. Wallace, Mr. Alexis Thomson, Mr. Alexander Miles, Mr. J. W. Dowden, Mr. A. A. Scot Skirving, and Mr. Geo. L. Chiene. Assistant Ophthalmic Surgeons: Dr. J. V. Paterson and Dr. A. H. H. Sinclair. Assistant Surgeons to the Ear and Throat Department: Dr. J. Malcolm Farquharson (*one vacancy*). Pathologist: Dr. Theodore Shennan. Assistant Pathologists: Dr. W. T. Ritchie (Clinical Pathology), and Dr. Henry Wade and Dr. Carnegie Dickson (Morbid Anatomy). Surgical Registrar: Dr. Scott Carmichael. Superintendent: Colonel W. P. Warburton, I.M.S. (retired), M.D., C.S.I.

Royal Infirmary, Glasgow.—This infirmary, which is the largest in Glasgow, is situated in Cathedral-square, Castle-street, and has car communication with every part of the city. St. Mungo's College is in the infirmary grounds.[1] The infirmary has, including the Ophthalmic Department, over 620 beds, the average number occupied in 1905 being 600. When the reconstruction of the infirmary, which was begun a year ago, is completed it will have about 700 beds. There are special beds and wards for diseases of women, of the throat, nose, and ear, venereal diseases, burns, and septic cases. Wards are set apart for the teaching of Women Students. At the Out-door Department the attendances in 1905 numbered over 62 000. In addition to the large medical and surgical departments there are departments for special diseases—viz, diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. Five house physicians and nine house surgeons, having a legal qualification in medicine and surgery, who board in the hospital free of charge, are appointed every six months. Clerks and dressers are appointed by the physicians and surgeons. As a large number of cases of acute diseases and accidents of a varied character are received these appointments are very valuable and desirable. A fully equipped Electrical Pavilion was opened a few years ago and year by year the latest and most approved apparatus for diagnosis and treatment has been added. The fees for hospital attendance, including clinical lectures and tutorial instruction, attendance at the out-door department, at the pathological department, post-mortem examinations, and the use of the museum, which has recently been re-arranged and catalogued, are as follows: For one year, £10 10*s.*; for six months, £6 6*s.*; for three months £4 4*s.* Students who have paid fees to the amount of £21 to the Glasgow Royal Infirmary shall be permitted to attend in any subsequent year or years one winter and one summer course of instruction in the infirmary without further payment; and students who have paid to any other hospital in the United Kingdom fees, being not less than £21, in virtue of which they are entitled to attend without further payment, shall be admitted as students of the Royal Infirmary on payment of £3 3*s.* for six months or £1 11*s.* 6*d.* for three months.

Staff.—Consulting Surgeon for Diseases of the Eye: Dr.

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[1] See section "Medical Schools with Full Curriculum."

A. Maitland Ramsay. Visiting Physicians: Dr. D. S. Middleton, Dr. J. Lindsay Steven, Dr. T. K. Monro, Dr. W. K. Hunter, and Dr. J. M. Cowan. Visiting Surgeons: Mr. John Barlow, Mr. J. A. Adams, Mr. David Newman, Mr. Q. McLennan, Mr. J. H. Pringle, Mr. H. Rutherfurd, and Mr. P. Paterson. Surgeon for Diseases of the Throat and Nose and Consulting Medical Electrician: Mr. J. Macintyre. Gynæcologist: Dr. J. K. Kelly. Surgeon for Diseases of the Ear: Mr. J. Kerr Love. Pathologist and Curator of Museum: Dr. Charles Workman. Assistant Pathologist: Dr. Mary Baird Hannay. Bacteriologist: Mr. David McCrorie. Assistant Bacteriologist: Mr. J. A. Campbell. Medical Electrician: Mr. J. R. Riddell. Assistant Medical Electricians: Dr. Samuel Capie, Dr. A. Jubb, and Katharine M. Chapman, L.R.C.P. Edin. Anæsthetist: Dr. A. Laurie Watson. Vaccinator: Dr. H. H. Borland. Dispensary Physicians: Dr. J. B. McK. Anderson, Mr. David McCrorie, Dr. Hugh McLaren, Dr. Norman Macnair, and Dr. John Henderson. Extra Dispensary Physicians: Dr. Campbell S. Marshall, Dr. James Scott, and Dr. J. T. McLachlan. Dispensary Surgeons: Mr. A. N. McGregor, Mr. John Patrick, Mr. John A. C. Macewen, Mr. A. C. Faulds, Mr. Thomas Kay, and Mr. Robert Ramsey. Extra Dispensary Surgeons: Mr. James Battersby, Mr. Donald Duff, and Mr. W. H. Steel. *Dispensary Specialists*:—Diseases of Women: Dr. J. K. Kelly; Diseases of the Ear: Mr. J. Kerr Love and Dr. James Adam; Diseases of the Skin: Dr. Alexander Morton; Diseases of the Throat and Nose: Dr. R. Fullerton; Diseases of the Eye: Dr. J. Rowan and Dr. H. W. Thomson; Diseases of the Teeth: Dr. W. Taylor. Superintendent: Dr. J. Maxtone Thom.

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes-road, Edinburgh.—This hospital contains 120 beds, and is fitted with every modern improvement. A fully equipped out-patient department (medical and surgical) is conducted daily in a building adjoining the hospital. Systematic courses of instruction, which qualify for graduation in the Edinburgh University and elsewhere, are given from time to time throughout the year by the staff. Students may enter at any time. Full particulars can be obtained from the Registrar at the hospital.

EYE, EAR, AND THROAT INFIRMARY OF EDINBURGH, 6, Cambridge-street, Lothian-road.—Clinical Lectures and Instruction are given in this institution, which is open at 1 o'clock daily for outdoor patients for Eye Diseases; Mondays, Thursdays, and Saturdays at 12 noon, and Tuesdays and Fridays at 4 P.M. for out-door Ear, Nose, and Throat Patients. Special Practical Ophthalmoscopic Classes by arrangement. Patients whose diseases require operations or more than ordinary care are accommodated in the house. Consulting Surgeon: Dr. Joseph Bell. Surgeons: Dr. William George Sym, Dr. Logan Turner, Dr. Malcolm Farquharson, Dr. John Cumming, Dr. J. V. Paterson, and Dr. E. M. Lithgow. Dental Surgeon: Mr. G. W. Watson. Treasurer and Secretary: Mr. J. P. Watson, W.S., 13, Hill-street.

GLASGOW WESTERN INFIRMARY.—This hospital adjoins the University of Glasgow. Number of beds upwards of 420. Special wards are set apart for Diseases of Women and for Affections of the Skin. In the out-patient department there are special cliniques for Diseases of Women and for Diseases of the Throat, Ear, and Teeth. The Clinical Courses are given by the Physicians and Surgeons, each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend. Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class. All the courses of clinical instruction are recognised by the University of Glasgow and the other boards in the kingdom. In the Pathological Department the course is both systematic and practical, also post-graduate courses, and extends through the winter and following summer; these are likewise recognised by the University for graduation. Eleven resident assistants are appointed annually, without salary, from those who have completed their course. *The fee for hospital attendance is* £10 10*s*., and the fees for clinical instruction are £3 3*s*. for Winter Session and £2 2*s*. for Summer Session.

Staff—Honorary Consulting Physicians: Dr. G. P. Tennant and Sir W. T. Gairdner, K.C.B. Visiting Physicians: Professor Sir T. McCall Anderson, Dr. J. Finlayson, Dr. S. Gemmell, and Dr. R. Stockman. Physicians for Diseases of Women: Dr. W. L. Reid and Professor M. Cameron. Assistant Physicians: Dr. J. Alexander, Dr. W. G. Dun, Dr. R. B. Ness, and Dr. Wm. MacLennan. Dispensary Physicians: Dr. Jas. Carslaw, Dr. John M. Cowan, Dr. John S. M'Kendrick, Dr. Robt. Fullarton, Dr. J. C. McClure, and Dr. F. Charteris. Dispensary Physicians for Diseases of Women: Dr. J. M. M. Kerr and Dr. E. H. L. Oliphant. Honorary Consulting Ophthalmic Surgeon: Dr. T. Reid. Honorary Consulting Surgeon: Dr. Alex. Patterson. Visiting Surgeons: Professor Sir Hector C. Cameron, Professor Sir W. Macewen, Dr. J. C. Renton, Dr. G. T. Beatson, C.B., Dr. T. K. Dalziel, and Dr. J. H. Nicoll. Assistant Surgeons: Dr. D. Macartney, Dr. R. Kennedy, Dr. A. A. Young, Dr. G. B. Buchanan, Dr. J. Morton, and Dr. G. H. Edington. Dispensary Surgeons: Dr. F. Macrae, Dr. Alex. MacLennan, Dr. Archd. Young, and Dr. M. L. Taylor. Extra Dispensary Physicians: Dr. A. B. Sloan, Dr. John Gracie, Dr. L. Findlay, and Dr. Duncan. Dispensary Aural Surgeon: Dr. T. Barr. Extra Dispensary Surgeons: Dr. W. W. Christie, Dr. C. C. Cuthbert, and Dr. A. H. Edwards. Dispensary Throat Surgeon: Dr. J. W. Downie. Vaccinator: Dr. J. W. Nicol. Pathologist: Professor R. Muir. Assistant Pathologists: Dr. M. L. Taylor and Dr. John H. Teacher. Dental Surgeon: Mr. W. D. Woodburn, L.D.S. Medical Superintendent: Dr. D. J. Mackintosh, M.V.O.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.—The Hospital at Garnethill was opened in December, 1882, and in June, 1903, a country branch consisting of two wards was opened at Drumchapel. The number of beds in the town hospital and country branch together is 100. A specially designed Dispensary, or Out-patient Department, was opened in October, 1888, in West Graham-street. The whole institution is for non-infectious cases and is available to medical students for clinical instruction in the diseases peculiar to childhood. Classes are formed both at Hospital and Dispensary at the beginning of the University session in October. Students may be enrolled at any time. *Fee* £1 1*s*. per annum, admitting to both Hospital and Dispensary. Particulars on applying to the House Surgeon, 45, Scott-street, Garnethill, Glasgow.

GLASGOW OPHTHALMIC INSTITUTION, 126, West Regent-street (29 beds and six cots).—Clinical and systematic course of lectures for students during the winter and summer sessions. In-patients, 971; out- or dispensary patients, 9989. Operations on Wednesdays and Saturdays. Honorary Consulting Surgeon: Dr. D. N. Knox. Surgeon: Dr. A. Maitland Ramsay. Assistant Surgeon: Dr. John Rowan. Junior Assistant Surgeons: Dr. H. Wright Thomson and Dr. John Gilchrist. Pathologist: Dr. Hugh Walker. Bacteriologist: Dr. J. Campbell McClure. Electrician: Dr. John Gilchrist. House Surgeon: Dr. G. C. Neilson. This institution is the Ophthalmic Department of the Royal Infirmary. A post-graduate course is given by Dr. Ramsay and assistants during November and December. Clinical instruction is given in the summer session to students of the University of Queen Margaret College and in winter to students of St. Mungo's College and to all who take the class.

GLASGOW EYE INFIRMARY, Berkeley-street and Charlotte-street.—This institution, the largest of its kind in Scotland, was founded in 1824. The Infirmary now consists of two large buildings—that in Berkeley-street being occupied as the Infirmary proper, and that in Charlotte-street (new buildings opened June, 1894) as a dispensary. The Infirmary is devoted exclusively to the treatment of Diseases of the Eye, and is intended primarily to provide treatment, and, when necessary, board and lodging, for those who are unable to do so for themselves. The average number of new patients for the last ten years has been 20,192·3, and the total number of cases treated in 1905 was 28,995. The Medical Staff is as follows:—Surgeons: Dr. Thomas S. Meighan, Dr. A. Freeland Fergus, Dr. Andrew Wilson, Dr. James Hinshelwood, Dr. Leslie Buchanan, and Dr. W. Ernest F. Thomson. Assistant Surgeons: Dr. A. Lewis M'Millan, Dr. Henry L. G. Leask, Dr. W. Cochrane Murray, Dr. Brownlow Riddell, Dr. Arthur J. Ballantyne, and Dr. A. A. Macfarlane. Pathologist: Dr. W. B. Inglis Pollock. House Surgeon: Dr. A. M. Pollock. Assistant House Surgeon: Dr. J. B. Morton.

Regulations as to Attendance of Students.—(1) Gentlemen may attend as students on payment to the treasurer of the following fees:—For six months £1 1*s*., 12 months £2 2*s*. (2) All students when duly entered in the Infirmary Register [illegible] or every member may attend the clinical instruc of the medical staff on production of their tickets. The days on which the surgeons respectively attend to receive patients may be ascertained at the Infirmary. Students have the privilege of being present in the Dispensaries at such hours as are arranged. They may enter the wards along with the surgeon whose clinique they are attending when he visits his patients. They may also be present at operations under the sanction of the surgeon operating, but no student may enter the wards or operating-room except under the aforesaid regulation. Students may be allowed the use of the journals and case-books for examination on applying to the House Surgeon. The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine. Joint Secretaries and acting Treasurers: William George Black and Harold John Black, 83, West Regent-street. The medical session opens in October.

IRISH SCHOOLS OF MEDICINE.[1]

ROYAL COLLEGE OF SURGEONS IN IRELAND (SCHOOLS OF SURGERY).—The schools of surgery are attached by Charter to the Royal College of Surgeons and have existed as a department of the College for over a century. They are carried on within the College buildings and are specially subject to the supervision and control of the Council, who are empowered to appoint and remove the professors and to regulate the methods of teaching pursued. The buildings have been reconstructed, the capacity of the dissecting-room nearly trebled, and special pathological, bacteriological, public health, and pharmaceutical laboratories fitted with the most approved appliances in order that students may have the advantage of the most modern methods of instruction. A refreshment-room is now open where students can have luncheon. There are special rooms set apart for lady students. The entire building is heated by hot-water pipes and lighted throughout by the electric light. Winter Session commences Oct. 1st; Summer Session, April 1st. Prospectuses and guide for medical students can be obtained post free on written application to the Registrar, Royal College of Surgeons, Stephen's-green, W., Dublin.

QUEEN'S COLLEGE SCHOOL OF MEDICINE, Belfast.—Ten Junior Scholarships have been founded in the Faculty of Medicine of the annual value of £20 each. Two are tenable by matriculated students of the first, second, third, fourth, and fifth years of their course respectively. The examinations for Scholarships take place at the commencement of the session. Class Prizes are awarded at examinations which take place at the close of the session. The Exhibitions, &c., of the Royal University of Ireland are also open to students. Lectures in Medicine at Queen's College, Belfast, will commence on Oct. 16th and end on March 31st. The Summer Medical Classes will begin on May 1st, except Botany, which begins on April 2nd. The new Chemical Buildings contain, in addition to a large class-room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark-room for photographic purposes, balance room, &c., provided with all modern appliances. Special facilities are given to those who wish to pursue original research. The Anatomical Department contains a large and well-lighted dissecting-room, a lecture-room, a professor's and demonstrator's room, a bone-room, and a laboratory for microscopic and photographic work. The medical museum is in the same building. The physiological department comprises (1) a large and well-lighted class-room for practical physiology and histology, fitted with motor and shafting, and with arrangements for lantern projection; (2) a laboratory for chemical physiology; (3) an apparatus-room; (4) a dark-room; (5) private research-rooms; and (6) a centrifuge-room. The Pathological Laboratory.—In this department opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D.P.H. degree. The pharmaceutical laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines. Clinical instruction is given at the Royal Victoria Hospital, the medical staff of which is as follows:—Physicians: Sir William Whitla, Professor James A. Lindsay, Dr. William Calwell, and Dr. H. L. McKisack. Surgeons: Mr. J. Walton Browne, Professor T. Sinclair, Mr. A. B. Mitchell, and Mr. T. S. Kirk. Gynæcologist: Professor J. W. Byers. Surgeon for Diseases of the Eye, Ear, and Throat: Mr. Joseph Nelson. Pathologist: Professor W. St.C. Symmers. Physician for Diseases of the Skin: Dr. W. Calwell. Assistant Physicians: Dr. W. B. McQuitty and Dr. J. S. Morrow. Assistant Surgeons: Mr. Robert Campbell and Mr. Andrew Fullerton. Assistant to the Gynæcologist: Mr. R. J. Johnstone. Assistant Surgeon Eye, Ear, and Throat Department: Mr. James A. Craig. Assistant to the Pathologist: Dr. S. H. G. Blakely. Administrators of Anæsthetics: Dr. V. G. L. Fielden, Dr. Howard Stevenson, and Dr. M. B. Smyth. Medical Electrician: Dr. J. C. Rankin. Hæmatologist: Dr. Thomas Houston. Refraction Assistant: Dr. Henry Hanna. Registrars: Dr. J. E. MacIlwaine and Dr. S. T. Irwin. The Ulster Hospital for Diseases of Women and Children, the Maternity Hospital, the Ophthalmic Hospital, the Ulster Eye, Ear, and Throat Hospital, the Hospital for Sick Children, and the District Lunatic Asylum are open to students. A pamphlet containing full information regarding the medical classes in Queen's College and the facilities for clinical instruction in the various hospitals can be had free on application to the Registrar, Queen's College, Belfast, or to the Secretary, Medical Staff, Royal Victoria Hospital, Belfast.

QUEEN'S COLLEGE SCHOOL OF MEDICINE, Cork.—The building is provided with a very large, well-ventilated dissecting room, supplied with electric light, with physiological, toxicological, pathological, and pharmaceutical laboratories, materia medica, anatomical and pathological museums, as well as a collection of surgical and obstetrical instruments and appliances. There are well-appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden. The plant houses are well filled with plants and are open to the students in the class of Botany.

Fees.—For Practical Anatomy and for Practical Chemistry, £3 each course; for Anatomy and Physiology, £3 first course, and £2 for each subsequent course. Other medical classes, £2 first course, and £1 each subsequent course.

Eight scholarships (value about £30 each), as well as several exhibitions and class prizes, are open to students in their first four years and the Blayney Scholarship, value £32, and a Senior Exhibition to students in their fifth year.

Students can attend the North and South Infirmaries, the Cork Union Hospital, the Cork Fever Hospital, the County and City of Cork Lying-in Hospital, the Cork Maternity, the County and City of Cork Hospital for Diseases of Women and Children, the Cork Eye, Ear, and Throat Hospital, and the Cork District Lunatic Asylum.

Staff, North Infirmary.—Physicians: Dr. D. D. Donovan and Dr. E. Magner. Surgeons: Dr. Cotter, Dr. C. Y. Pearson, Dr. N. J. Hobart, and Dr. D. J. O'Mahony. Assistant Physician: Dr. R. B. Dalton. Assistant Surgeons: Dr. J. Dundon and Dr. R. P. Byrne. Pathologist: Dr. Denis Murphy. House Physician: Dr. D. F. Hegarty. House Surgeon: Dr. D. M. Donovan. Surgeon Dentist: Mr. H. O'Keeffe.

Staff, South Charitable Infirmary.—Physicians: Dr. P. T. O'Sullivan and Dr. N. I. Townsend. Surgeons: Dr. H. R. Townsend, Dr. H. Corby, and Dr. T. G. Atkins. Ophthalmic Surgeon: Dr. A. W. Sandford. Extern Physicians: Dr. D. J. O'Flynn and Dr. E. W. Allsom. Extern Surgeon: Dr. R. P. Crosbie. House Surgeon: Dr. J. P. Higgins. Dentist: Mr. T. C. Butterfield.

THE MEDICAL SCHOOL OF THE CATHOLIC UNIVERSITY, IRELAND, DUBLIN.—Founded in 1855, it is now the largest medical school in Ireland. It prepares students specially for the examinations of the Royal University and the Conjoint Colleges of Ireland and Edinburgh, but its lectures and practical courses are recognised by all the Licensing Bodies in Great Britain and Ireland. In addition to the ordinary medical examinations it prepares students for the D.P.H. and for the various higher University *examinations in* Pathology, Physiology, Chemistry, &c. Six exhibitions and numerous *gold and silver medals are offered* annually for competition. The school opens for dissections on Oct. 1st; the winter lectures begin on Nov. 2nd. The Summer Session commences on April 1st.

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[1] For Scholarships see p. 633 et seq.

QUEEN'S COLLEGE SCHOOL OF MEDICINE, Galway.—There are eight Junior Scholarships in Medicine of the annual value of £25 each. Two are tenable by matriculated students of the first, second, third, and fourth years. The Council has power to award exhibitions for distinguished answering. Sessional prizes are offered in each subject. A Senior Scholarship in Anatomy, value £40, the holder of which may be appointed Demonstrator, is offered annually for competition tenable for one year by a student who shall *have attended the Medical School of the College for at least* two sessions and shall have obtained a Degree in Arts or Medicine or a *Diploma* in Medicine from a *Licensing Body.* Scholarship examinations are held at the commencement *and those for Sessional Prizes at the close of each* session. The Medical lectures are recognised by the Royal University of Ireland and the various Licensing Bodies in the United Kingdom. The College contains well lighted and ventilated dissecting room and anatomical lecture theatre; physiological, pharmaceutical, chemical, and physical laboratories; anatomical, pathological, gynæcological, and materia medica museums; as well as a large natural history and geological museum and an extensive library in which students can read and from which they can borrow books. Clinical instruction is given *in the Galway Hospital and in the Galway Union* and *Fever Hospitals.* The following constitute the medical staff of the Galway Hospital.—Physicians: Professor Kinkead and Professor Lynham. Surgeons: Professor Pye, Professor Colahan, and Professor Brereton. Gynæcologist: Professor Kinkead. House Surgeon: Mr. O'Brien. Instruction at the Galway Union and Fever Hospital is given by Professor Colahan and Mr. McDonogh. There are extensive grounds, a portion of which is occupied by a Botanic Garden and a part is at the disposal of the College Athletic Union. A prospectus *containing* full *information* as to courses of lectures, scholarships, and fees for classes can be obtained *on application to the Registrar, Queen's* College, Galway.

HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

ADELAIDE MEDICAL AND SURGICAL HOSPITALS, Peter-street, Dublin.—Fee for nine *months'* hospital attendance, £12 12s.; six months, £8 8s. Summer, three months, £5 5s.

Staff.—Physicians: Dr. James Little, Dr. Wallace Beatty, and Dr. H. T. Bewley. Surgeons: Mr. F. T. Heuston and Mr. T. E. *Gordon. Obstetric Surgeon:* Sir W. J. Smyly. Ophthalmic Surgeon: Dr. H. R. Swanzy. Throat Surgeon: Dr. S. Horace Law. Pathologists and Bacteriologists: Dr. J. Alfred Scott and Dr. W. Geoffrey Harvey. Dental Surgeons: Dr. Theodore Stack and Mr. John Stanton. *Assistant Physician:* Dr. G. Peacocke. Assistant Surgeon: Dr. K. E. Levison-Gower Gunn. House Surgeons: Dr. King Edwards and *Dr. George Wright.*

Two resident surgeons are elected yearly and three resident pupils half-yearly. At the termination *of the session* prizes in Clinical Medicine and Surgery and in Obstetric Medicine will be awarded.

Hudson Scholarship.—In addition to the junior prizes the Hudson Scholarship, £30 and a gold medal, as well as a prize of £10, together with a *silver medal,* will be awarded at the end of the session for proficiency in Clinical Medicine and Medical Pathology, Clinical Surgery and Surgical Pathology, Pathological Histology, Surgical Appliances, including instruments and bandaging, Ophthalmology, Gynæcology, and *Dermatology.*

The certificates of attendance are recognised by all the Universities and *licensing* bodies in the United Kingdom. Further particulars may be obtained from Mr. F. T. Heuston.

COOMBE LYING-IN HOSPITAL AND GUINNESS DISPENSARY FOR THE TREATMENT OF DISEASES PECULIAR TO WOMEN, *Dublin.—This* hospital contains nearly 70 beds and consists of two divisions, one of which is devoted to lying-in cases and *the other* to the treatment of diseases peculiar to women. The *practice of this hospital is* one of the largest in Ireland; nearly 18,000 cases are treated annually, either as *intern or extern patients. Lectures* are delivered, practical instruction given, and gynæcological operations are performed in the theatres daily. There is a general dispensary held daily, at which instruction is given on the Diseases of Women and Children. There is a special afternoon dispensary *held by the Master and his* assistants, at which practical instruction in gynæcology is given. This is the largest dispensary of its kind in Dublin. There is no extra charge for attendance at this dispensary. There is accommodation for intern pupils who enjoy exceptional advantages *of acquiring a thorough knowledge of this branch of their* profession. Lady medical students can reside in the hospital. Clinical assistants are appointed from amongst the pupils as vacancies occur. Certificates of attendance at this hospital are accepted by all licensing bodies, and the diploma is recognised by the Local *Government Board* as a full legal midwifery qualification. The resident quarters *have been* much enlarged. *A* billiard table has been erected for the use of students. Fees: Extern pupils for full course of six months, £8 8s.; three months, £4 4s. Intern pupils, one month, £4 4s.; each consecutive month, £3 3s.; six months, £18 18s.; board and lodging in the hospital, 18s. per week. Lady students' intern, one *month,* £5 5s.; each consecutive month, £4 4s. Registration fee, in advance, 10s. 6*d.* Students can enter for *attendance at* any time, but preference is given to those entering from the first day *of* the month. Further particulars may be had *on* application to the Master or the Registrar at the hospital.

Staff.—Consulting Physicians: Sir John Banks, Sir John W. Moore, *and Dr. J. M. Redmond. Consulting Surgeons:* Dr. F. T. Heuston and Dr. F. W. Kidd. Pathologist: Dr. E. J. McWeeney. Pathological *Analyst:* Sir *C. A.* Cameron. Master: Dr. T. G. Stevens. Assistant Masters: Dr. M. J. Gibson and Dr. Ronald S. Orbell. Registrar: *Fred. A. Heney.*

SIR PATRICK DUN'S HOSPITAL, Grand Canal-street, Dublin.—Special classes *for students* commencing their hospital studies will be held in the wards during the months of October, November, and December. They will embrace the elements of Medicine and Surgery, including note taking. The surgical operating theatre, which has recently been erected, is equipped *upon the most approved* principles and is thoroughly in accord with modern surgical requirements. Instruction in the *Diseases of Women* is given Tuesday and Friday at 10 A M. by Sir Arthur V. Macan. There is a special wing *devoted to fever cases* and regular clinical *instruction* is given by the members of the medical staff throughout the Winter and Summer Sessions. *Pathological* and Bacteriological Demonstrations will be given each Friday at 10 30 A.M. during the Winter and Summer *Sessions* in the new Pathological Laboratory. A new *department* has been opened for the special treatment of Throat, Nose, and Ear diseases. Instruction will be given in these subjects and in the use of the Laryngoscope and Otoscope to senior *students* on Tuesdays and Fridays. Opportunities are given the members of the hospital class *of* seeing the various applications of the x rays to the diagnosis and *treatment* of injury and disease Opportunities are *here* also afforded *for the* diagnosis and treatment of the numerous minor ailments not met with in the hospital wards. Demonstrations are *given* upon Diseases of the Skin. A resident surgeon, with salary, is appointed annually. The election takes place at the end of December. Four Resident *Pupils* are appointed each half-year. Six Surgical Dressers and six Clinical Clerks are appointed each *month.*

Prizes and Medals.—Clinical medals and prizes will be awarded in Medicine and in Surgery respectively in accordance with the will of the late Rev. Samuel Haughton, M D., S.F.T C D. Candidates who fail *to obtain* these medals and prizes will be awarded special certificates in Medicine and in Surgery provided they show sufficient merit. The next *examination* will be held on Monday, April 22nd, 1907.

Fees.—Winter and summer session, £12 12s.; winter session (six months), £8 8s.; and summer session (three months), £5 5s. The practice of this hospital is *open to* students of Medicine in attendance on schools *other than* the School *of Physic,* the certificates being recognised by the Royal University and Royal Colleges *of Surgeons of* England, Ireland, and Scotland.

MERCER'S HOSPITAL.—This hospital, *founded in 1707,* is situated in the *centre* of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal *College of Surgeons.*

the Catholic University School of Medicine, and within five minutes' walk of Trinity College. It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork-street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil, &c. There is a large out-patient department and a special department for diseases peculiar to women. There are also special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements.

Appointments.—A House Surgeon is appointed annually. Five Resident Pupils, each for six months, and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class.

The Winter Session will commence on Oct. 1st.

Fees.—Winter, six months, £8 8*s.*; Summer, three months, £5 5*s.*; nine months, £12 12*s.*

For further particulars apply to Dr. R. Charles B. Maunsell, 32, Lower Baggot-street, Dublin.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.—Physicians: Sir John William Moore, Dr. James Craig, and Dr. Edward E. Lennon. Surgeons: Sir L. H. Ormsby, Mr. W. J. Hepburn, Mr. William Taylor, Mr. R. Lane Joynt, and Mr. F. Conway Dwyer. Gynæcologist: Dr. F. W. Kidd. Clinical Assistants: Dr. William Boxwell and Dr. Henry Stokes. Pathologist: Professor Arthur H. White. This hospital was founded in 1753 and now contains 160 beds available for clinical teaching. A building containing 40 beds for the isolated treatment of fevers is attached to the Hospital. The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom. Six Medical Clinical Clerks and Twelve Surgical Resident Pupils and Dressers are appointed every six months, and a House Surgeon and two Clinical Assistants are elected annually. The session will open on Oct. 1st. A prospectus giving the complete arrangements for the Medical and Surgical classes for the coming session may be obtained from the Secretary of the Medical Board, Mr. William Taylor, 47, Fitzwilliam-square, Dublin.

MATER MISERICORDIÆ HOSPITAL, Dublin.—Consulting Physician: Sir Francis R. Cruise. Consulting Surgeon: Mr. Charles Coppinger. Physicians: Sir Christopher Nixon, Bart., Dr. Joseph Redmond, Dr. John Murphy, and Dr. Martin Dempsey. Surgeons: Sir Arthur Chance, Mr. John Lentaigne, and Mr. Alexander Blaney. Assistant Physician: Dr. John O'Donnell. Assistant Surgeon: Mr. Curran. Temporary Assistant Surgeon: Mr. D. Farnan. Obstetric Physician: Dr. Robert Farnan. Ophthalmic Surgeon: Mr. Louis Werner. Dental Surgeon: Mr. E. Sheridan. Pathologist: Dr. Edmond McWeeney. Anæsthetist and Surgical Registrar: Dr. Patrick O Farrell. This hospital, the largest in Dublin, at present containing 345 beds, is open at all hours for the reception of accidents and urgent cases. Clinical instruction will be given by the Physicians and Surgeons at 9 A.M. daily. A course of Clinical Instruction on Fever will be given during the winter and summer sessions. A certificate of attendance upon this course, to meet the requirements of the licensing bodies, may be obtained. Opportunities are afforded for the study of Diseases of Women in the ward under the care of the Obstetric Physician, and at the Dispensary held on Tuesdays and Saturdays. Ophthalmic Surgery will be taught in the Special Wards and in the Dispensary. Surgical Operations will be performed on Mondays, Tuesdays, Fridays, and Saturdays at 11 o'clock. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents. Instruction will be given on Pathology and Bacteriology. Two House Physicians, six House Surgeons, and 16 resident pupils will be elected annually. Dressers and Clinical Clerks will also be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes will be offered for competition annually. For further particulars see prospectus. Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom. Private Wards have been opened for the reception of Medical and Surgical cases. A Training School and a Home for Trained Nurses have been opened in connexion with the Hospital.

Terms of attendance.—Nine months, £12 12*s.*; six winter months, £8 8*s.*; three summer months, £5 5*s.* Entries can be made with any of the physicians or surgeons, or with the Registrar, Dr. Martin Dempsey, 35, Merrion-square. A prospectus containing in detail the arrangements for Clinical Instruction, Prizes &c., may be obtained from the Secretary, Medical Board.

RICHMOND, WHITWORTH, AND HARDWICKE HOSPITALS, North Brunswick-street, Dublin.—These hospitals contain 312 beds—110 for Surgical cases, 82 for Medical cases, and 120 for Fever and other epidemic Diseases. A Resident Physician and a Resident Surgeon are appointed each half year and are paid for their services. 12 Resident Clinical Clerks are appointed each quarter and provided with furnished apartments, fuel, &c. These appointments are open not only to advanced Students, but also to those who are qualified in Medicine and Surgery. The Dressers are selected from among the best qualified of the pupils without the payment of any additional fee. For prospectuses apply to Sir W. Thomson, C.B., Hon. Treasurer, 54, Stephen's-green East; or to Dr. J. O'Carroll, Honorary Secretary, 43, Merrion-square, Dublin.

ROTUNDA HOSPITAL, Dublin.—This institution is the largest gynæcological as well as maternity hospital in the British empire. Qualified men who take out a course of two or three months' duration during the autumn, winter, or spring periods obtain (if they show keenness and capacity) one or more forceps applications and a certain number of minor gynæcological operations. Unqualified students can also enter at any time for the practice of the hospital and have access, not alone to the maternity and gynæcological wards, but also to the pathological laboratory attached to the hospital. The residential quarters have undergone considerable improvement and afford comfortable accommodation. Valuable appointments are periodically filled by qualified students who have obtained the hospital diploma. For further particulars apply to Mr. E. Hastings Tweedy, Master.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 30th, 1828.

FOREIGN DEPARTMENT.

NICOLAS CHERVIN'S RESEARCHES ON THE NATURE OF YELLOW FEVER.

THIS distinguished individual has been engaged, during nearly the whole of his life, in the study of this formidable disease; neither dangers nor pecuniary sacrifices could change his intention to visit almost every part of America where this calamity reigns. He did not return, until after ten years of incessant study and incredible toil, to his native country, to reap the fruits of his admirable zeal. ......[1] Chervin has made more than FIVE HUNDRED post-mortem examinations. He has often *swallowed* some of the *black fluid* found in the stomach of the deceased; he *rubbed the whole surface of his body with it, and always remained free from infection.*

The following are the general results of his inquiries:—Of more than 500 competent practitioners, only 48 are in favour of the contagiousness of the yellow fever, 483 being decidedly against it. In those parts of America where it most frequently rages, nobody believes in contagion; the extension of the disease seems entirely owing to the atmospheric constitution, and to local causes; the latter consist, partly, in putrid effluvia; there exists, in no case, a clear proof of contagion having taken place, and all assertions to the contrary are founded either on false testimonies, on defective observations, or on erroneous inferences from correct observations.

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[1] A "concise account of his travels" fills this lacuna.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY.

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
LONDON UNIVERSITY	No. 1.	£40 per annum.	1 year.	Awarded to the most meritorious of those candidates, whether internal or external, who, having passed the whole Intermediate Examination in Medicine at one time, have been awarded marks of distinction in (1) ANATOMY, or (2) PHYSIOLOGY, or (3) PHARMACOLOGY.	No candidate will be allowed to receive the income of more than one scholarship at the same time.
	No. 2.	£40 per annum.	1 year.		
	No. 3.	£30 per annum.	1 year.		
SOCIETY OF APOTHECARIES OF LONDON	Gillson.	£90 per annum.	1 year.	Open to Licentiates of the Society, or to candidates for the Society's Diploma who obtain such Diploma within six months of their election to the scholarship.	Candidates must be under 35 years of age.
ST. BARTHOLOMEW'S MEDICAL SCHOOL	Entrance Scholarships. No. 1.	£75.	—	Open Competitive Examination in not more than three nor fewer than two of CHEMISTRY, PHYSICS, ZOOLOGY, BOTANY, PHYSIOLOGY, ANATOMY.	Full or University Course at St. Bartholomew's Hospital.
	" No. 2.	£75.	—		Ditto
	" No. 3	£150.	—	Open Competitive Examination in not fewer than three of the following:— CHEMISTRY, PHYSICS, BOTANY, ZOOLOGY, PHYSIOLOGY.	Full Course at St. Bartholomew's Hospital.
	Preliminary Scientific Exhibition.	£50.	—		Ditto.
	Jeaffreson Exhibition.	£20.	—	Open Competitive Examination in LATIN, MATHEMATICS, and GREEK, or FRENCH, or GERMAN.	Ditto.
	Shuter Scholarship.	£50.	—	Competitive Examination among Cambridge Graduates in ANATOMY and PHYSIOLOGY.	Ditto.
	Junior Scholarships. " No. 1.	£30.	—	Competitive Examination among Students in ANATOMY and BIOLOGY.	Study at St. Bartholomew's Hospital.
	" No. 2.	£20.	—	Ditto.	Ditto.
	" No. 3.	£25.	—	Competitive Examination in CHEMISTRY, PHYSICS, and HISTOLOGY.	Ditto.
	" No. 4.	£15.	—	Ditto	Ditto.
	Senior Scholarship.	£50.	—	Competitive Examination among Students in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	Ditto.
	Kirkes Scholarship.	£30 and Medal.	—	Competitive Examination among Students in CLINICAL MEDICINE.	Ditto.
	Brackenbury Scholarships. " No. 1.	£39.	—	Competitive Examination among Students in MEDICINE.	Ditto.
	" No. 2.	£39.	—	Competitive Examination among Students in SURGERY.	Ditto.
	Lawrence Scholarship.	£45 and Medal.	—	Competitive Examination among Students in SURGERY, MEDICINE, and MIDWIFERY.	Ditto.
	Sir Geo. Burrows Prize.	£10.	—	Competitive Examination in PATHOLOGY among Students.	Ditto.
	Skynner Prize.	13 guineas.	—	Competitive Examination in REGIONAL and MORBID ANATOMY among Students.	Ditto.
	Matthews Duncan Medal and Prize.	£20.	—	Competitive Examination among Students in MIDWIFERY and GYNÆCOLOGY.	Ditto.
	Luther Holden Research Scholarship in Surgery. (And other Prizes and Medals *of less value*).	£105.	—	By Election.	Ditto.
CHARING CROSS HOSPITAL AND COLLEGE	Entrance Scholarships, open to students at the commencement of curriculum. Livingstone.	100 guineas.	—	The Livingstone and Huxley Scholarships are awarded *annually* at the commencement of each Winter Session, after a competitive examination in the *following* groups *of* subjects:— (1) ENGLISH, including LANGUAGE, HISTORY, and GEOGRAPHY; (2) LATIN and *any one of the following* three languages—GREEK, FRENCH, and GERMAN, (3) MATHEMATICS, including ARITHMETIC, ALGEBRA, and GEOMETRY, and MECHANICS, including STATICS and DYNAMICS; (4) INORGANIC CHEMISTRY and EXPERIMENTAL PHYSICS, including ACOUSTICS, HEAT, MAGNETISM, ELECTRICITY, and OPTICS; and (5) ANIMAL and VEGETABLE BIOLOGY. No Candidate may offer himself for examination in more than three of the above groups of subjects, the selection of the groups being left entirely to the Candidate.	Open to all general students.
	...	60 "	—		Open to all general students.
	Huxley.	55 "	—		For sons of medical men.
	...	40 "	—		Open to all general students.
	...	30 "	—		For dental students.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
CHARING - CROSS HOSPITAL AND COLLEGE—*continued.*	Epsom Scholarship.	Free education.	—	....	Epsom Foundation Scholars who have passed Preliminary Scientific M.B. *Lond.* Univ.
	Universities Scholarship (1) Universities Scholarship (2)	72 guineas. 72 "	—	Examination in Anatomy and Physiology, including Histology.	Oxford Students who have passed first M.B. Exam. Cambridge students who have passed second M.B. Exam. London students who have passed Intermediate Exam. in Med. who have not entered at any London Medical School.
	Llewellyn Scholarship.	£25	....	Awarded annually to the Student of not more than five years' standing who, in the opinion of the School Committee, shall have distinguished himself the most at the Prize Examinations in the following subjects, viz.:—Medicine, Surgery, Midwifery, Pathology, Therapeutics, Forensic Medicine, Public Health, Psychological Medicine, Ophthalmology, Practical Medicine, Practical Midwifery.	None.
	Huxley Medal with Prize.	£10.	—	Competitive Examination in Anatomy and Physiology at end of Second Winter Session.	—
	Golding Prize.	£10.	—	Competitive Examination among First-year Students in Anatomy and Physiology.	Students must have attended the Classes in each subject at this School.
	The Dr. T. H. Green Prize for Clinical Medicine.	5 guineas.	......	Given annually to the Student who does the best work upon some special subject involving simple clinical observation in the wards or clinical laboratory and on the result of a practical examination on cases in the wards.	....
ST. GEORGE'S HOSPITAL	Entrance Scholarships. No. 1.	70 guineas	—	Competitive Examination in Anatomy and Physiology.	......
	" No. 2.	£50.	—	Ditto.	......
	Wm. Brown Exhibition.	£100 per annum.	2 years.	Competitive Examination among Perpetual Pupils having registrable qualification in the Practice of Medicine, Midwifery, and Surgery.	Study at St. George's School.
	"	£40 " "	3 years.	Competitive Essay and Submission of Original Work by Perpetual Pupils qualified not more than three years previously.	Ditto.
	Allingham Scholarship in Surgery.	Interest on £1500.	—	Competitive Essay for Students qualified not more than three years.	....
	Brackenbury Prize in Medicine.	Interest on £1103.	—	Competitive Examination among Students of not more than five years' standing.	None.
	Brackenbury Prize in Surgery.	Interest on £1103.	—	Competitive Examination among Students of not more than five years' standing.	None.
	Treasurer's Prize.	£10 10s.	—	Proficiency in Clinical Examination of three Medical and three Surgical Cases, together with a written Examination in Medicine, Surgery, and Midwifery.	None.
	H. C. Johnson Memorial Prize.	£10 10s.	—	Competitive Examination in Practical Anatomy.	None.
	Pollock Prize.	Interest on £372.	—	Competitive Examination in Physiology, Physiological Chemistry, and Histology.	None.
	Clarke Prize. Thompson Medal. Brodie Prize.	Interest on £309. Interest on £165. Interest on £220.	— — —	Awarded for Clinical Reports and Commentaries.	None.
	Webb Prize.	Interest on £1000.	—	Competitive Examination among Perpetual Pupils in Bacteriology.	None.
GUY'S HOSPITAL ...	Entrance Scholarships. No. 1.	£100.	—	Open Competitive Examination among Candidates under twenty years of age in Latin, English, Greek or French or German, Arithmetic, Euclid, and Algebra.	Course at Guy's Hospital.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
GUY'S HOSPITAL—*continued.*	Entrance Scholarships. No 2.	£50.	...	Under twenty five years of age, ditto,	Course at Guy's Hospital.
	" No. 3.	£150.	...	Open Competitive Examination among Candidates under twenty-five years of age in INORGANIC CHEMISTRY, GENERAL BIOLOGY, and EXPERIMENTAL PHYSICS	Perpetual Course at Guy's Hospital.
	" No 4.	£60.	......	Ditto.	Ditto.
	" No. 5.	£50.	...	Competitive Examination among Candidates under twenty five years *of age who have completed* the curriculum for, or passed, the Examinations in Anatomy and Physiology for a medical degree in any University of the British Empire, *and have not entered as Students* in any Metropolitan Medical School.	Ditto.
	Hilton Prize.	£5.	...	Dissections by Senior Students.	Ditto.
	Junior General Proficiency.	£20.	...	Competitive Examination among Junior Students in ELEMENTARY ANATOMY, HISTOLOGY, ANATOMY, and PHYSIOLOGY.	
	"	£15.	...	*Ditto.*	*Ditto.*
	"	£10.	...	Ditto	Ditto.
	Michael Harris Prize.	£10.	...	Competitive Examination among Second year Students in HUMAN ANATOMY.	*Ditto*
	Sands Cox Scholarship.	£15 per annum.	3 years.	Competitive Examination among Second year Students in PHYSIOLOGY, HISTOLOGY, and PHYSIOLOGICAL CHEMISTRY.	
	Wooldridge Memorial Prize.	£10.	......	Ditto.	
	Treasurer's Gold Medals (1) for Clinical Medicine, (2) for Clinical Surgery.	......	......	Competitive Examination among Senior Students in MEDICINE and SURGERY respectively.	
	Golding Bird Prize.	*£20 and Medal.*	...	*Competitive Examination among Senior Students in* BACTERIOLOGY.	Ditto.
	Beaney Prize.	£31 10s.	...	Competitive Examination among Students in PATHOLOGY.	Ditto.
	Gull Studentship, Pathology.	£150 per annum.	3 years.	Awarded *without Competitive* Examination to Students intending to conduct Research	
	Beaney Scholarship, Therapeutics.	£31 10s.	3 years.	*Ditto.*	
KING'S COLLEGE	Warneford Scholarships. No. 1.	£25 per annum.	4 years.	Competitive Examination among Matriculated Medical Students in DIVINITY, *ENGLISH HISTORY, LATIN,* GREEK, FRENCH, GERMAN, and MATHEMATICS	Perpetual Course at King's College.
	" No. 2.	£25 per annum.	4 years.	Ditto.	Ditto.
	Sambrooke Exhibition.	£150.	...	Open Competitive *Examination* in MATHEMATICS, ELEMENTARY PHYSICS, INORGANIC CHEMISTRY, BOTANY, and ZOOLOGY.	Course as Medical Student at King's College.
	Babbeth Scholarship.	£20.	...	Competitive Examination among Matriculated Students in Preliminary Scientific Subjects.	None.
	Science Exhibitions. No. 1.	£30 per annum.	2 years.	Competitive Examination among Candidates under nineteen *years of* age in MATHEMATICS, MECHANICS, PHYSICS, &c., or alternative Subjects.	None.
	Science Exhibitions. No. 2.	£20 per annum.	2 years.	Competitive Examination among Candidates under nineteen *years of* age in MATHEMATICS, MECHANICS, PHYSICS, &c., or alternative subjects.	None.
	Medical Entrance Scholarship.	£50.	...	Open Competitive Examination in ANATOMY AND PHYSIOLOGY *for Students* who propose to take degree at any British University and have passed the Examination at that University in BIOLOGY, CHEMISTRY, and PHYSICS.	Perpetual Student *from* date of entering upon Scholarship on completion of University Examination in ANATOMY and PHYSIOLOGY
	Medical Scholarships. No 1.	£40 per annum.	1 year.	Competitive Examination among Fourth year Students.	
	" No. 2.	£20.	1 year	Competitive *Examination* among Third year Students.	
	" No. 3.	£20.	1 year.	Competitive Examination among Second-year Medical Students	
	Sambrooke Registrarship. No. 1.	£50.	...	Competitive Examination among Matriculated Medical Students who have filled certain appointments at hospitals.	
	" *No. 2.*	£50.	...	Ditto.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

Institution.	Title of Scholarship, &c.	Annual or Total Value.	How long Tenable.	How obtainable.	Conditions attached to Tenure.
KING'S COLLEGE—*continued.*	Daniel Scholarship.	£20 per annum.	2 years.	Open Competitive Examination among six months' Laboratory Students in Chemistry.	
	Carter Prize.	£15.	—	Open Competitive Examination in Botany.	
	Tanner Prize.	£10.	—	Competitive Examination in Obstetrics and Diseases of Women and Children.	None.
	Todd Prize.	£4 4s. and medal.	—	Competitive Examination in Clinical Medicine.	
LONDON HOSPITAL	1. Price Scholarship:	£120.	—	Competitive Examination among Students in subjects of Preliminary Scientific M.B. Examination at University of London.	Successful Candidates must enter as Full Students.
	2. Entrance Scholarships.				
	" No. 1.	£60.	—	Ditto.	
	" No. 2.	£35.	—	Ditto.	
	3. Epsom College Scholarship.	Free Education.	—	....	
	4. Price Scholarship.	£60.	—	Human Anatomy and Physiology.	Study at Oxford or Cambridge.
	Buxton Scholarships. No. 1.	£30.	—	Competitive Examination among Students in subjects of Preliminary Examination.	
	" No. 2.	£20.	—	Ditto.	
	Scholarship.	£20.	—	Competitive Examination in Clinical Medicine.	
	"	£20.	—	Competitive Examination in Clinical Surgery.	
	"	£20.	—	Competitive Examination in Clinical Obstetrics.	
	Sutton Prize in Pathology.	£20.	—	Competitive Examination in Pathology.	
	Biennially: Duckworth Nelson Prize.	£10.	—	Competitive Examination in Pathology, Practical Medicine, and Surgery.	
	Letheby Prizes (3)	£30.	—	Competitive Examination in Chemistry.	
	Scholarship.	£25.	—	Competitive Examination in Anatomy and Physiology.	
	"	£20.	—	Competitive Examination in Anatomy and Biology.	
	Dressers' Prizes. " No. 1.	£10.	—	Zeal, Efficiency, and Knowledge of Minor Surgery.	
	" No. 2.	£10.	—	Ditto.	
	" No. 3.	£10.	—	Ditto.	
	" No. 4.	£10.	—	Ditto.	
	" No. 5.	£10.	—	Ditto.	
	" No. 6.	£10.	—	Ditto.	
	Triennially: Hutchinson Prize.	£40.	—	For the best essay upon a subject in Clinical Surgery.	
	Practical Anatomy Prizes.	£8. £4.	— —	....	
	Biennially: Andrew Clark Prize.	£26.	—	Clinical Medicine and Pathology.	
	James Anderson Prizes.	£9.	—	Clinical Medicine.	
	Douro Hoare Prize.	£5.	—	Physiology.	
	Wynne Baxter Prize.	£5 5s.	—	Forensic Medicine.	
ST. MARY'S HOSPITAL	Natural Science Scholarship	£145.	—	Competitive Examination.	Course at St. Mary's Hospital.
	"	£78 15s.	—	Ditto.	
	"	£52 10s.	—	Ditto.	
	"	£52 10s.	—	Ditto.	
	University Scholarship.	£63.	—	Open to Students from any British University by Competitive Examination in Natural Science.	
	"	£63.	—		
	Epsom College Scholarship.	£145.	—	By nomination.	
	Gold Medal in Clinical Medicine.	£20.	—	Given for an Essay on some Special Point in Clinical Medicine.	
	General Proficiency Scholarship, No. 1.	£20	1 year.	Advanced Anatomy, Physiology, and Histology.	
	" No. 2.	£20.	1 year.	Midwifery, Materia Medica, Pathology, and Forensic Medicine.	
	" No. 3.	£20.	1 year.	Medicine, Surgery, Hygiene, and Mental Diseases.	
	Ophthalmology Prize.	£10 10s.	—	Awarded twice in each year by Competitive Examination.	
	Dermatology Prize.	£5 5s.	—	Ditto.	
	Meadows Prize in Obstetrics.	£8.	—	Awarded in alternate years for Proficiency in Obstetrics.	
	Clinical Medicine Prize.	£5 5s.	—	Awarded annually for Reports of Clinical Cases by Students of Third and Fourth Years.	
	Clinical Surgery Prize.	£5 5s.	—		

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ST. MARY'S HOSPITAL—*continued.*	Winter Session Prizes (9 in number).	£3 3s. each.	— —	Competitive Examination at the end of the Course of Lectures in each of the Subjects of the Medical Curriculum.	
	Summer Session Prizes (9 in number).	£2 2s. each.	— —	Ditto.	
MIDDLESEX HOSPITAL –	Entrance Scholarship No. 1. (in Arts)	£100.	— —	Open Competitive Examination.	Course at Middlesex Hospital.
	" No. 2. (in Science)	£75.	— —	Ditto.	Ditto.
	" No. 3.	£50.	— —	Competitive Examination among Students from Oxford or Cambridge. (Subjects: ANATOMY and PHYSIOLOGY, including HISTOLOGY.)	
	Freer Lucas Scholarship.	£126.	— —	*To Students of Epsom College, on* Nomination of Head Master.	
	Broderip Scholarship. No. 1.	£60.	— —	Competitive Examination among Senior Students in CLINICAL SUBJECTS.	
	" No. 2.	£40.	— —	Ditto.	
	Freeman Scholarship.	£30.	....	Examination in OBSTETRICS and GYNÆCOLOGY.	
	Governor's Prize.	£21.	— —	Competitive Examination among Students *during Sixth Year of Study.*	
	Hetley Clinical Prize.	£25.	— —	Competitive Examination among the Students during *Fifth Year of Study.*	
	John Murray Gold Medal and Scholarship.	£20.	Every third year.	Examination in THEORETICAL and PRACTICAL MEDICINE.	
	Lyell Medal and Scholarship.	£55 5s.	— —	Examination in SURGICAL ANATOMY and PRACTICAL SURGERY.	
	Leopold Hudson Prize.	£11 11s.	....	Examination in SURGICAL PATHOLOGY and BACTERIOLOGY.	
	Second year's Exhibition.	£10 10s.	....	*Examination in ANATOMY* and PHYSIOLOGY.	
	"Emden" Cancer Research Scholarship.	£100.	3 years.	— —	
	Richard Hollins Research Scholarship.	£105.	....	....	
ST. THOMAS'S HOSPITAL SUMMER	College Prizes. " No. 1.	£15.	— —	Competitive Examination among Second-year Students.	
	" *No. 2.*	*£10.*	— —	Ditto.	
WINTER	Entrance Science Scholarship. No. 1.	£150.	— —	Competitive Examination in PHYSICS, CHEMISTRY, and BIOLOGY.	Perpetual Course.
	" No. 2.	£60.	— —	Ditto.	*Ditto.*
	" No. 3.	£50.	— —	Competitive Examination in ANATOMY, *PHYSIOLOGY, CHEMISTRY* (*any two*).	Perpetual Course from fourth year.
	Wm. Tite Scholarship.	£25.	— —	Competitive Examination among Second-year Students.	
	College Prizes. " No. 5.	£20.	— —	*Ditto.*	
	" No. 6.	£10.	— —	Ditto.	
	Musgrove Scholarship, or	£35.	2 years.	Competitive Examination among Third-year Students.	
	Peacock Scholarship.	£35.	2 years.	Ditto.	
	College Prizes. " No. 7.	£20.	— —	Competitive Examination among Third-year Students.	
	" No. 8.	£10.	— —	Ditto.	
	" No. 9.	£10.	— —	Competitive Examination among Fifth-year Students.	
	" No. 10.	£10.	— —	Ditto.	
	" No. 11.	£10.	— —	Ditto.	
	" No. 12.	£10.	— —	Ditto.	
	" No. 13.	£10.	— —	Ditto.	
	" *No. 14.*	£10.	— —	*Ditto.*	
	" No. 15.	£10.	— —	Competitive *Examination in* SURGERY and ANATOMY.	
	Cheselden Medal.	— —	— —	Competitive Examination in MEDICINE and PATHOLOGY.	
	Mead Medal.	— —	— —	Ditto.	Perpetual Course from fourth year.
	Seymour Graves Toller Prize.	— —	— —	Competitive Examination *in* PATHOLOGY and MORBID ANATOMY.	
	Bristowe Medal.	— —	— —	SURGICAL REPORTS.	
	Solly Medal and Prize.	— —	— —	General Proficiency.	
	Treasurer's Gold Medal.	— —	— —	MEDICINE and PATHOLOGY.	
	Wainwright Prize.	— —	— —	*PATHOLOGY.*	
	Hadden Prize.	— —	— —	For SURGERY and SURGICAL PATHOLOGY.	
	Beaney Scholarship.	£50 biennially.	— —	Reports of Cases in OBSTETRIC MEDICINE.	
	Sutton Sams Memorial Prize.	£5 biennially.	— —		

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ST. THOMAS'S HOSPITAL—*continued.*	Grainger Testimonial Prize.	£15 annually.	— —	For work in ANATOMY and PHYSIOLOGY.	
	The Salters' Company Research Fellowship.	£100 annually.	3 years.	Promotion of Research — PHARMACOLOGY.	
	Louis Jenner Research Scholarship.	£80 annually.	2 years.	Promotion of Research—PATHOLOGY.	
UNIVERSITY COLLEGE, LONDON	Entrance Scholarship (Bucknill).	185 gs.	— —	Open Competitive Examination in CHEMISTRY, PHYSICS, BOTANY, and ZOOLOGY.	Complete Course at University College and University College Hospital Medical School.
	Entrance Exhibition. No. 1.	55 gs.	— —	Ditto.	Complete Intermediate Course at University College.
	" No. 2.	55 gs.	— —	Ditto.	Ditto.
	Cluff Memorial Prize.	£15 (biennially).	— —	Proficiency in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	
	Epsom Free Medical Scholarship.	....	....	Proficiency in subjects of PRELIMINARY SCIENTIFIC, and nomination by Epsom College.	Complete Course at University College and University College Hospital Medical School.
	Schäfer Prize in Physiology.	£18 (triennially).	— —	Research in PHYSIOLOGY.	
	Sharpey Physiological Scholarship.	£105 a year.	— —	Proficiency in BIOLOGICAL SCIENCES	
	Morris Bursary.	£16 a year.	2 years.	Available for sons of deceased professional men, by nomination.	
	5 Gold and 5 Silver Medals.	Annually.	....	Competition among Students of the various departments.	
Hospital Medical School ...	Entrance Scholarship (Bucknill). (See above.)	....	....	....	
	Entrance Exhibition. No. 1.	80 gs.	— —	Open Competitive Examination in ANATOMY and PHYSIOLOGY.	Final Course at University College Hospital Medical School.
	" No. 2.	80 gs.	....	Ditto.	Ditto.
	Atkinson Morley Scholarship.	£45 per annum.	3 years.	Theory and Practice of SURGERY.	
	Atchison Scholarship.	£55 per annum.	2 years.	Competitive Examination among Medical Students.	
	Filliter Exhibition.	£30.	1 year.	Competitive Examination among Students in PATHOLOGY.	
	Fellowes Clinical Medals.	2 Senior and 2 Junior Medals.	....	Competition among Students in CLINICAL MEDICINE.	
	Liston Gold Medals.	2 Gold Medals.	— —	Competition among Students in CLINICAL SURGERY.	
	Alexander Bruce Gold Medal	....	....	Proficiency in PATHOLOGY and SURGERY.	
	Tuke Silver and Bronze Medals	....	....	Competition in PATHOLOGY.	
	Erichsen Prize.	£10 10s.	....	Competition in PRACTICAL SURGERY.	
	5 Gold and 5 Silver Medals.	....	....	....	
WESTMINSTER HOSPITAL	Guthrie Entrance Scholarship.	£60 (total).	— —	Open Competitive Examination among Candidates under twenty-five years of age in LATIN, MATHEMATICS, EXPERIMENTAL PHYSICS, CHEMISTRY, and GREEK, FRENCH, or GERMAN.	For Students entering in the Winter Session.
	Entrance Scholarship.	£40 (total).	— —	Ditto.	Ditto.
	Ditto.	£30.	— —	Ditto.	Ditto.
	Dental Scholarship.	£20 (total).	— —	Ditto, as above, save that Dental Students only can compete.	For Students entering in the Winter Session.
	Free Presentation.	— —	— —	Open to Pupils of the Epsom Medical College, obtained by recommendation.	
	Entrance Scholarship (Governors).	£40 (total).	— —	Open Competition in CHEMISTRY and EXPERIMENTAL PHYSICS according to the Synopsis of the Conjoint Board	For Students entering in the Summer Session.
	Natural Science	£60.	— —	Competitive Examination in subjects of Preliminary Scientific of University of London.	For Students entering in the Winter Session. In April and in September.
	University Scholarship.	£40 (total).	— —	Competitive Examination among University Students in ANATOMY and PHYSIOLOGY.	
	Ditto	£30.	— —	Ditto.	Ditto.
	Natural Science	£60.	— —	Competitive Examination in subjects of Preliminary Scientific of London University.	Ditto.
	Arts Scholarship (Entrance).	£60.	— —	Competitive Examination as for the Guthrie Scholarship.	For Students entering in the Summer Session
	Ditto.	£40.	— —	Ditto.	Ditto.
	Sturges Prize in Clinical Medicine.	£10.	— —	Notes and commentaries on 6 cases.	
	Clinical Surgery.	£5.	— —	Ditto on 6 cases.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
WESTMINSTER HOSPITAL —*continued.*	Chadwick Prize.	£21 in books or instruments.	— —	Competitive Examination among Medical Students in MEDICINE and SURGERY, including PATHOLOGY and APPLIED ANATOMY and PHYSIOLOGY.	
	Frederick Bird Medal and Prize.	£14 in medal and books or instruments.	— —	Competitive Examination in MIDWIFERY and DISEASES of WOMEN, MEDICINE, and PATHOLOGY among Students who have completed their Fourth Winter Session at the Westminster Hospital School of Medicine.	
	Alfred Hughes Memorial Prize.	About £5 in books or instruments.	— —	Awarded annually to the candidate who during the second year in ANATOMY exhibits the highest proficiency at the class examinations in that subject held during the Winter Session	
	Carter Gold Medal and Prize for Botany.	Gold Medal and books of the joint value of £15.	— —	Open to Students who have not exceeded three academical years from the beginning of their attendance.	
	Jelf Medal.	...	— —	Awarded annually to the Student of the third year most distinguished in examinations.	
	Second Year Scholarship.	£20.	1 year.	Subjects of Examination—ELEMENTARY ANATOMY, ELEMENTARY PHYSIOLOGY and HISTOLOGY, and ORGANIC CHEMISTRY.	
	Third Year Scholarship.	£20.	1 year.	This Scholarship is open to all Students at the end of their Third Winter and Summer Sessions. Subjects — ANATOMY, PHYSIOLOGY, and PHARMACOLOGY and MATERIA MEDICA.	
	Daniel Scholarship.	£20.	2 years.	Awarded every year to the Student who shall have executed the best researches in CHEMISTRY.	
	Rabbeth Scholarship.	£20.	— —	Given annually in memory of Samuel Rabbeth, M.B. Lond., who sacrificed his life in an attempt to save a child who was dying from diphtheria. It is awarded to the Student who in his first year shall acquit himself best in the Class Examinations in the Preliminary Scientific Course.	
LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN	Entrance Scholarship.	£30.	— —	Competitive Examination in ENGLISH, LATIN, ARITHMETIC, EUCLID, and ALGEBRA.	
	St. Dunstan's Medical Exhibition.	£60.	3 years, extendible to 5 years.	Ditto.	Candidates must be (1) not more than 20 years of age on June 1st preceding the examination; (2) resident in the Metropolitan Police District area; (3) Matriculated Students of the University of London; (4) in the opinion of the Governors in need of such an exhibition for the prosecution of their medical studies.
	Stuart Mill Scholarship.	£30.	4 years.	Application to Secretary by Sept. 1st.	Candidates must be willing to enter into a legal arrangement to practise in India under the Countess of Dufferin's Fund. Next award September, 1909.
	Bostock Scholarship.	£60.	2 or 4 years.	Given on the result of an examination held by the University of London in June to a Student who has passed the Preliminary Scientific Examination or Intermediate Science Examination of the University of London held in the previous July or the July following the Examination.	Candidates are expected to read for the M.B. degree of the University of London. Next award June, 1907.
	Mabel Webb Research Scholarship.	£30.	1 year, renewable.	For Research Work in PHYSIOLOGY, CHEMISTRY, or PATHOLOGY.	Next award October, 1906.
	Fanny Butler Scholarship.	£14 10s.	4 years.	Application to Secretary by Sept. 1st.	Candidates must be willing to work in connexion with the Church of England Zenana Missionary Society. Next award September, 1906.
	John Byron Bursary.	£20.	2 to 4 years.	Application to Secretary by March 31st.	Offered to students already in the school requiring assistance for the prosecution of their medical studies. N award May, 19

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN—*continued.*	Helen Prideaux Scholarship.	£40.	—	......	Awarded every second year to a Student who has qualified during the two years immediately preceding the date of the award, and who, in the opinion of the Trustees, has done the best work during her final years in MEDICINE, SURGERY, OBSTETRIC MEDICINE, and PATHOLOGY. The holder of the Prize shall submit to the Trustees for their approval a statement as to how she proposes to spend the money, so as to fulfil the condition that it is for the purpose of assisting her to further study. Next award December, 1906.
OXFORD UNIVERSITY	Burdett-Coutts Scholarships.	£115 per annum.	2 years.	Competitive Examination.	For the promotion of the Study of Geology and of Natural Science as bearing on Geology.
	Radcliffe Trav. Fellowship.	£200 " "	3 years.	Ditto.	Foreign Travel for purpose of Medical Study.
	Rolleston Prize.	—	—	Original Research.	This prize is given once in two years and is of the value of about £80.
	Scholarships in various branches of Natural Science at many of the Colleges.	£50 to £80 a year.	4 years.	Competitive Examination.	Satisfactory industry.
	Welsh Memorial Prize.	—	—	Best set of drawings illustrative of HUMAN ANATOMY.	Competitors must be members of the University who have studied in the Anatomical laboratory. No one is eligible who has passed the first examination for the degree of B.M., or an examination in Anatomy necessary for registration as a qualified medical practitioner.
UNIVERSITY OF DURHAM	Four Scholarships.	£25 a year each.	4 years.	The Examination will be the *September* Examination for the Certificate in General Education. Candidates must take ENGLISH, LATIN, ARITHMETIC, EUCLID, ALGEBRA, GEOGRAPHY, ENGLISH HISTORY, with GREEK or GERMAN, or both. (See College Calendar for special books.)	Candidates desirous of being admitted as Medical Students. The successful Candidates must take out their entire curriculum at the University of Durham College of Medicine, Newcastle-upon Tyne.
College of Medicine	Pears Scholarship.	£50 a year.	3 years.	Certificate of Proficiency in GENERAL EDUCATION.	
	Masonic Scholarship.	£15 a year.	3 years.	MATRICULATION EXAMINATION.	
	Dickinson Scholarship.	Interest on £400 and Gold Medal.	—	Examination in MEDICINE, SURGERY, MIDWIFERY, and PATHOLOGY.	Full Students of the College of Medicine who have passed the intermediate examination of any of the Licensing Bodies named in Schedule A of the Medical Act, 1858.
	Tulloch Scholarship.	Interest on £400.	—	Examination in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	No Student is eligible who commenced his medical curriculum more than two academical years before the date of examination.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
UNIVERSITY OF DURHAM *(College of Medicine)—continued.*	Charlton Memorial Scholarship.	Interest on £700.	— —	— —	Open to full Students of the College entered for the class on the Principles and Practice of Medicine.
	Gibb Scholarship.	Interest on £500.	— —	Awarded annually as a Scholarship in PATHOLOGY to full Student who passes the best examination in that subject.	No Student eligible after completion of his curriculum.
	Luke Armstrong Memorial Scholarship.	Interest on £880.	— —	Original Essay on some subject in COMPARATIVE PATHOLOGY. (If no Essay of sufficient merit be presented the Scholarship may be awarded to the Candidate who, in passing the first part of the Examination for the B.Hy. Degree, obtains the highest number of marks in COMPARATIVE PATHOLOGY during the year.)	Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University, and whose age does not exceed 30 years.
	Stephen Scott Scholarship.	Interest on £1000.	— —	Original Essay on any Surgical subject.	Any Graduate in Medicine or Surgery of the University or any Student of the College of Medicine. Student's age must not exceed 30 years.
	Heath Scholarship	Interest on £4000.	— —	For 1908 – Original Essay on INJURIES AND DISEASES OF THE ARTERIES, VEINS, AND CAPILLARIES, AND THEIR TREATMENT.	All Graduates in Medicine or Surgery of the University are eligible.
	Gibson Prize.	Interest on £225.	....	Examination in subject of MIDWIFERY and DISEASES OF WOMEN AND CHILDREN.	Open to Students who have attended one course of lectures on Midwifery and Diseases of Women and Children.
Royal Infirmary	Goyder Memorial Scholarship.	Interest on £325.	Annually.	Student who most distinguishes himself in CLINICAL MEDICINE and CLINICAL SURGERY at the Royal Infirmary.	
UNIVERSITY OF BIRMINGHAM	Myers Travelling Studentship.	£150.	1 year.	Awarded by vote of committee to M.B., Ch.B.Birm., B.Sc. candidates.	Tenable at one of certain German universities.
	Ingleby Scholarship.	£10.	1 year.	Awarded to the candidate at Final Examination obtaining highest marks in the subjects of MIDWIFERY and GYNÆCOLOGY.	
	Sydenham Scholarship.	£42.	3 years.	Award of Council to orphan sons of Medical Practitioners.	
	Sands Cox Scholarship.	£42.	3 years.	Awarded to the candidate, not being more than 19 years of age, taking the highest marks at the June Matriculation	
	Dental Scholarship.	£37 10s.	3 years.	Open Competitive Examination in subjects learned during apprenticeship.	
	Four Queen's Scholarships.	£10 10s. each.	— —	Awarded to candidates taking highest place at Second, Third, Fourth, and Final M.B. Examinations.	
	George Henry Marshall Scholarship.	£10.	Annually.	For the encouragement of Research Work in OPHTHALMOLOGY.	
UNIVERSITY OF MANCHESTER	General Entrance Scholarships.	— —	— —	— —	Open to candidates above 16 and under 20 years of age
	Rogers.	£40.	2 years.	Subjects: GREEK, LATIN TRANSLATIONS AT SIGHT, and PROSE COMPOSITION.	
	Seaton.	£40.	2 years.	Subjects: GREEK, LATIN TRANSLATIONS AT SIGHT, and PROSE COMPOSITION.	
	Dalton.	£40.	2 years.	Subjects: EUCLID, ALGEBRA, TRIGONOMETRY, GEOMETRY, and CONIC SECTIONS.	
	Cartwright.*	£35.	3 years.	Ditto.	
	Hulme.	£35.	3 years.	Subjects: ENGLISH LANGUAGE and LITERATURE, HISTORY, GEOGRAPHY, and LATIN, GREEK FRENCH, or GERMAN (any two subjects).	
	James Gaskill.	£35.	2 years.	MATHEMATICS, MECHANICS, and CHEMISTRY.	
	Dora Muir.†	£25.	3 years.	Ditto.	
	Manchester Grammar School.*	£25	3 years.	MATHEMATICS, ENGLISH ESSAY with CLASSICS and PHYSICAL SCIENCE in alternate years.	

* Open to men candidates only.

† Open to women candidates only.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued*.

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
UNIVERSITY OF MANCHESTER—*continued*.	Kay-Shuttleworth.*	£50.	3 years.	Subjects as in James Gaskill Scholarships.	Pupils of Sedbergh, Giggleswick, or Burnley Grammar School.
	Theodores Exhibition.	£15.	1 year.	Subjects: FRENCH and GERMAN.	Successful candidates are required to enter for a regular University course.
	Matriculation Entrance Scholarship.	£30.	3 years.	Awarded on results of July Matriculation Examination.	
	Entrance Scholarships in Medicine.	£100.	......	One for proficiency in Arts. One for proficiency in Science.	No limit as to age. £60 set off against University fees and £40 against Infirmary fees.
	Platt Biological Scholarship.	£50.	1 year.	Awarded to candidate who shows the most promise of ability for prosecuting original research in ZOOLOGY and BOTANY.	To devote his time to research in Zoology or Botany.
	Robert Platt Physiological Scholarship.	£50.	2 years.	Subjects: PHYSIOLOGY and COMPARATIVE ANATOMY.	Open to Candidates whether or not previously students of the University.
	Dauntesey Medical Scholarships (two).	£35 each.	1 year.	Subjects: ZOOLOGY, BOTANY, and CHEMISTRY.	These Scholarships are open to all students preparing for a Medical Course who shall not have attended Lectures or Laboratory Courses on Human Anatomy or Physiology, or a purely Medical or Surgical Course in the University or any other Medical School in the United Kingdom. Candidates must not be more than 25 years of age on October 1st of the year of competition. Scholars must immediately on election enter for a full course of medical studies.
	Robert Platt Exhibitions (two).	£15 each.	——	——	First and second year students in Physiology.
	Sidney Renshaw Exhibition.	£15.	——	——	Second year students in Physiology.
	Professor Tom Jones Exhibition in Anatomy.	£25.	......	......	First year students in Anatomy.
	Turner Scholarship.	£20.	——	Subjects: MEDICINE, PATHOLOGY (written and practical), OBSTETRICS, PRACTICAL SURGERY, OPHTHALMOLOGY, FORENSIC MEDICINE, and PUBLIC HEALTH.	Students who have completed a full course of medical study in the University are eligible only.
	John Henry Agnew Scholarship.	£30.	——	The Scholarship is awarded on the results of an Examination, partly written and partly clinical, on DISEASES OF CHILDREN, MEDICAL AND SURGICAL.	Open for competition annually to all students in the Medical Department who have pursued a regular course of medical study in the University extending over a period of not less than 4 years or more than 6, and who have attended the course of lectures on Diseases of Children.
	Professor Tom Jones Memorial Surgical Scholarship.	£100.	1 year.	The scholar will be elected on the result of evidence submitted by him.	Candidates must have either graduated in the University or have obtained the Diploma of the Conjoint Colleges.
	Dumville Surgical Prize.	£15.	——	Subjects: SYSTEMATIC, PRACTICAL, and OPERATIVE SURGERY, SURGICAL ANATOMY, and SURGICAL PATHOLOGY.	

---

* Open to men candidates only.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
EDINBURGH UNIVERSITY —*continued.*	* Crichton Research Scholarships in Anatomy, Physiology, Materia Medica, and Pathology.	£100 each per annum.	1, 2, or 3 years.	Competitive Examination for Graduates of the University.	Continued research.
	* Mouat Scholarship.	£55 and Medal.	1 year.	Class and Degree Examinations in PRACTICE OF PHYSIC (MEDICINE).	Continued study in Medicine.
	* Grierson Bursary. " No. 4.	£10.	1 year.	Competitive Examination in MATERIA MEDICA.	Continued study.
	" No. 5.	£10.	1 year.	Competitive Examination in PATHOLOGY.	Ditto.
	* M'Cosh Graduate's Bursary and M'Cosh Medical Bursary (for Research).	Income of £5500.	1 year.	Distinction in Professional Subjects, and sufficient knowledge of FOREIGN LANGUAGES.	Study or Research in Medical Schools of Europe.
	* Gunning Victoria Jubilee Prizes (2 awarded annually).	Each £50.	--	Thesis or Original Research in ANATOMY, PHYSIOLOGY, ZOOLOGY, BOTANY, CHEMISTRY, MATERIA MEDICA, SURGERY, PRACTICE OF PHYSIC, PATHOLOGY, OBSTETRICS, and MEDICAL JURISPRUDENCE and PUBLIC HEALTH, respectively.	
	* Theses Gold Medals.	--	--	Candidates for M.D. who present Theses of high merit.	
	Conan Doyle Prize.	£32.	--	Most distinguished Graduate of year from South Africa.	
	* Wightman Prize.	£12.	--	Competitive Reports on Clinical Medicine Cases.	
	* Beaney Prize.	£32 10s	--	Highest Marks in ANATOMY, SURGERY, and CLINICAL SURGERY, in M.B. and Ch.B. Examinations.	
	* Ellis Prize.	£28 per annum.	--	Essay on ANIMAL OR VEGETABLE PHYSIOLOGY.	
	* Cameron Prize.	Annual Proceeds of £2000.	--	Most valuable addition to PRACTICAL THERAPEUTICS during preceding 5 years.	
	* Milner Fothergill Gold Medal.	About £20.	--	Essay on PHARMACOLOGICAL or THERAPEUTIC SUBJECT.	
	† Mackay Smith Scholarship in Chemistry.	£25 per annum.	2 years.	Competitive Examination in CHEMISTRY among University Students.	Continued study of Chemistry.
	† Houldsworth Scholarship.	£40.	1 year.	Competitive Examination in MATERIA MEDICA among University Students or Graduates.	Research in Pharmacology.
	† Mackenzie Bursaries (2 annually).	£20.	......	Industry and Skill in PRACTICAL ANATOMY.	
	* Pattison Prize.	About £11 7s. 6d.	......	Competitive Reports on CLINICAL SURGERY CASES.	
	Dobbie Smith Gold Medal.	--	--	Essay on BOTANICAL SUBJECT.	
	Anderson Henry Prize.	Proceeds of £300 accum. for 3 years.	--	Ditto.	
	Gilfillan Memorial Prize.	About £10.	--	Most distinguished Woman Graduate of year.	
LASGOW UNIVERSITY..	Two Highland Society Bursaries.	£25 each.	5 years.	Open 1906. Awarded on results of Preliminary Examination.	Open to medical students of Highland descent.
	Mackintosh Mental Science Bursary.	£31.	1 year.	--	Open for competition to students of medicine of either sex attending the lectures on Insanity.
	Monteith Bursary.	£21.	2 years.	Vacant 1906. Examination in ANATOMY and PHYSIOLOGY.	Awarded on results of Second Professional Examination.
	Dr. Thos. Gibson Bursary.	£36.	4 years.	Vacant 1906. Competition by Students at the First Professional Examination.	Open to medical students preparing to be missionaries in connexion with the Church of Scotland.
	Coats Scholarship.	£80.	1 year.	Special Examination in PATHOLOGY. Vacant 1907.	Open to Graduates in Medicine of not more than three years' standing. Holder to prosecute research in Pathology.
	John Macfarlane Bursary.	£40.	3 years.	Vacant 1908. Examination in ANATOMY, CHEMISTRY, and BOTANY.	Open to medical students entering on their Second Winter Session.
	Lorimer Bursary.	£24.	3 years.	Vacant 1906. Examination in ANATOMY, CHEMISTRY, and BOTANY.	Open to medical students entering on their Second Winter Session.

* For Students entering on or in their Fourth or Fifth Year, or for Graduates.
† For Students of any year (or standing of candidates not stated).

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
GLASGOW UNIVERSITY—*continued.*	One Armagh Bursary in Medicine.	£48.	3 years.	Competition by Students who are presenting themselves for the Final Examination for the degree of M.A. with Honours in MENTAL PHILOSOPHY.	Open to students of either sex who have taken the course of study for graduation in Arts and intend to study Medicine.
	One Armagh Bursary in Medicine.	£48.	2 years.	Competition by Students who are presenting themselves for the Final Examination for the degree of M.A. with Honours in CLASSICS.	Ditto.
	Taylor Bursary.	£7.	4 years.	Appointment by the Senate. Vacant in 1906.	Open to students of either sex in any faculty.
	William Gardiner Bursary.	£14.	2 years.	Next vacancy 1907. Competition in PHYSIOLOGY, CHEMISTRY, and PHYSICS of PROFESSIONAL EXAMINATIONS.	Open to medical students of either sex.
	Rainy Bursary.	£20.	2 years.	Vacant 1906 Examination in ANATOMY, PHYSIOLOGY, CHEMISTRY, BOTANY, and ZOOLOGY.	Open to medical students entering on their Fourth Winter Session.
	Two Paterson Bursaries.	£25 and £20.	4 years.	Vacant 1906. Examination in MATHEMATICS and DYNAMICS.	Open to medical students of First or Second Session.
	Brunton Memorial Prize.	£10.	1 year.	Awarded annually to the most distinguished Graduate in MEDICINE of the year.	
	Dobbie Smith Gold Medal.	....	....	Awarded annually for the best essay on any subject within the limits of the science of BOTANY.	All matriculated students of 1905–6 or 1906–7 may be competitors.
	Two Arnott Prizes.	£25 and £15.	year.	Examination in PHYSIOLOGICAL PHYSICS &c.	
	Andrew and Bethia Stewart Bursary.	£50.	3 years.	Vacant 1906 Special Examination.	Candidates must be M.A. of Glasgow University.
	Weir Bursary.	£16.	1 year.	Awarded on result of Second and Third Professional Examinations.	
QUEEN'S COLLEGE, BELFAST	Ten Junior Scholarships for Matriculated Students, two for each of the five years' curriculum.	£20 each.	1 year.	Examination at the commencement of session.	Open to matriculated Medical Students of either sex.
ROYAL COLLEGE OF SURGEONS IN IRELAND, SCHOOLS OF SURGERY	Class Prizes.	£50.	....	Proficiency in Class Examination.	Open to student of class.
	Carmichael Scholarship.	£15.	....	Examination in ANATOMY, PHYSIOLOGY, HISTOLOGY, CHEMISTRY, MATERIA MEDICA, and PHARMACY.	Open to students of the third year.
	Mayne Scholarship.	£8.	....	SURGERY, MEDICINE, PATHOLOGY, MIDWIFERY, and DISEASES OF WOMEN.	Open to students of third and fourth year.
	Barker Bequest.	£31 10s.	....	For best DISSECTION.	Open to all medical students.
ROYAL UNIVERSITY OF IRELAND	Travelling Medical Scholarship.	£100.	....	The subjects are in rotation: (1) ANATOMY AND HISTOLOGY; and (2) PHYSIOLOGY AND PATHOLOGY.	Those who have passed the Medical Degrees Examination either in the year of the scholarship examination or in the year immediately preceding are alone eligible.
	Dr. Henry Hutchinson, Stewart Medical Scholarships.				
	" No. 1.	£10.	3 years.	Competition in the subjects of the second examination in MEDICINE.	Candidates must present themselves after the lapse of not more than one medical year from the time of passing the first examination in medicine.
	" No. 2.	£50.	3 years.	Subjects include PSYCHOLOGICAL MEDICINE, DISEASES OF THE NERVOUS SYSTEM, and ANATOMY, PSYCHOLOGY and PATHOLOGY OF BRAIN, CORD, AND NERVES.	Competition among medical graduates of not more than 3 years' standing for proficiency in the knowledge of Mental Diseases. Fee £2.
	Medical Studentship.	£200.	2 years.	In 1906 PATHOLOGY and BACTERIOLOGY. In 1907 PHYSIOLOGY and PHYSIOLOGICAL CHEMISTRY.	Open to Graduates in Medicine of the University. Fee £2.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ROYAL UNIVERSITY OF IRELAND—*continued.* ...	Exhibition at first Examination in Medicine.				
	" No. 1.	£20.	— —	— —	
	" No. 2.	£20.	— —	— —	
	" No. 3.	£10.	— —	— —	
	" No. 4.	£10.	— —	— —	
	Exhibition at second Examination in Medicine.				
	" No. 1.	£25.	— —	— —	
	" No. 2.	£25.	— —	— —	
	" No. 3.	£15.	— —	— —	
	" No. 4.	£15.	— —	— —	
	Exhibition at third Examination in Medicine.				
	" No. 1.	£30.	— —	— —	
	" No. 2.	£30.	— —	— —	
	" No. 3	£20.	— —	— —	
	" No. 4.	£20.	— —	— —	
	M.B., B Ch., and B.A.O. Examinations.				
	" No. 1.	£40.	— —	— —	
	" No. 2.	£40.	— —	— —	
	" No. 3.	£25.	— —	— —	
	" No. 4.	£25.	— —	— —	
QUEEN'S COLLEGE, GALWAY	Eight Junior Scholarships.	£25 each and half fees.	1 year.	Competitive Examination at the commencement of session.	Students of either sex must be of the standing of the year, and may be of any recognised school of medicine.
QUEEN'S COLLEGE, CORK	Eight Junior Scholarships for Matriculated Students, two for each of first four years of curriculum.	£25.	1 year.	Examination at commencement of session.	Open to matriculated students of either sex.
	Blayney Scholarship, in fifth year of curriculum.	£32.	1 year.	Ditto.	Ditto.
	Senior Exhibition, in fifth year of curriculum.	£30.	1 year.	Ditto.	Ditto.
	Three Exhibitions in Practical Medicine, Surgery, and Midwifery respectively.	£15 each.	......	Examination at end of medical session.	

THE NAVAL, MILITARY, AND INDIAN MEDICAL SERVICES.

DURING the year some changes for the better have been made in the regulations for the Royal Army Medical Corps. The conditions of service in the medical department of the Royal Navy and in the Indian Medical Service remain much as they were at the date of the issue of the Students' Number in 1905; the few unimportant changes are, however, incorporated in this article. The marked improvement in the quality of the candidates for the services which was hoped for as the result of the beneficial alterations which have been introduced into the conditions of service cannot be said to have been realised yet. There is, however, a supply of candidates and it is true that the social standard of the selected candidates for the Royal Army Medical Corps has improved and that the process of weeding out before the London examination, however it may be effected, is doing good to the service, though even now some men who are considered undesirable manage to pass the portals. As to the medical qualifications of the competitors, there does not appear to be any great change since the Netley days though there may be a few more men who can write M.B. Lond. or F.R.C.S. Eng. after their names. An improvement in the professional knowledge and practical work of the lieutenants-on-probation passing through the Medical Staff College in London has, we believe, not been evident. The new regulations as regards pay for the civil side of the Indian Medical Service should go some way towards reinstating the service in the favour of the young medical man and his advisers, but as private practice up country is much less than in the old days we believe that a still more liberal scale of pay will have to be granted. We desire to call attention to a proposal which we make for the alteration of the date of first commission in the Indian Medical Service; the proposal will be found towards the end of the information which we print relative to that service. With reference to the course of instruction given at the Medical Staff College for the probationers of the Royal Army Medical Corps and the Indian Medical Service it cannot be said that at present the course is any improvement on that given in the old Army Medical School at Netley. The work of the lieutenants-on-probation is done at too high a pressure to be really valuable, but this defect, we believe, is recognised and can be easily remedied by extending the period of instruction. No doubt when the new college is built and all the work of the course is done there, close to the military hospital, much better arrangements will be made than at present exist. The new Army Medical College will, it is estimated, cost £250,000.

ROYAL NAVY MEDICAL SERVICE.

REGULATIONS FOR THE ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. He must produce an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth. He must also produce a certificate of moral character, up to date, and a recommendation signed by a clergyman or magistrate, to whom he has been for some years personally known, or by the president or senior professor of the college at which he was educated.

He must be registered under the Medical Act in force, as qualified to practise medicine and surgery in Great Britain and Ireland.

He must declare (1) his age and date and place of birth; (2) that he is of pure European descent and the son either of natural-born British subjects or of parents naturalised in the United Kingdom; (3) that he labours under no mental or constitutional disease or weakness, nor any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any climate; (4) that he is ready to engage for general service at home or abroad, as required; (5) whether he holds, or has held, any commission or appointment in the public services; and (6) that he is registered under the Medical Act in force as duly qualified professionally, and what diplomas, &c., he holds.[1]

He must be free from organic or other diseases, and his physical fitness will be determined by a Board of Medical Officers, who are to certify that his vision comes up to the required standard, which will be ascertained by the use of Snellen's Test Types. The certificates of registration, character, and birth, must accompany the declaration, which is to be filled up and returned as soon as possible, addressed as above.

Candidates will be examined by the Examining Board in the following compulsory subjects and the highest number of marks attainable will be distributed as follows (a fee of £1 will have to be paid by each candidate to entitle him to take part in the competition): (*a*) medicine, materia medica, therapeutics and general hygiene, 1200 marks; (*b*) surgery and surgical anatomy, 1200 marks. The examination in medicine and surgery will be in part practical and will include, beyond papers, the examination of patients, the examination of pathological specimens, a knowledge of bacteriology, the performance of operations on the dead body, and the application of surgical apparatus. The attention of candidates is especially drawn to the importance of the section of Operative Surgery, as a competent knowledge in this subject is essential in order to qualify for a commission. No candidate shall be considered eligible who shall not have obtained at least *one-third* of the maximum marks in each of the above *compulsory subjects*.

Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be—Natural Sciences: chemistry (300); physiology (300); zoology (300); botany (300); and geology and physical geography (300). No candidate will be allowed to present himself for examination in more than two of these subjects. French and German (300 each), 600 marks. A number less than one-third of the marks obtainable in each of these *voluntary subjects* will not be allowed to count in favour of the candidate who has qualified in the *compulsory subjects*. The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German. The examination in chemistry will include the general principles of inorganic and organic chemistry; the preparation and properties of the chief non-metallic and metallic elements and their compounds; the preparation, properties and classification of the more important compounds, such as marsh gas, ethylene, acetylene, methyl and ethyl alcohols, glycerin, ether, formic, acetic, lactic and oxalic acids; cyanogen and cyanides; carbohydrates; fats; proteids. The examination in physiology will comprise the minute structure and functions of the various tissues and organs of the body; the physiology of the blood; the nature of food and the processes of its digestion; the mechanics of the circulation and of respiration; the physiology of nutrition, secretion, and excretion; animal heat, the nature of sensation, volition, reflex action, inhibition and influence of the nervous system on other organs and their functions. The examination in zoology will include—the general principles of biology, and a comparison of animals with plants; the distinctive characters of the larger groups of animals—the protozoa, cœlenterata, vermes, arthropoda, mollusca, echinodermata, and vertebrata—as illustrated by common types; the elements of embryology; animal parasites. The examination in botany will comprise the general principles of the morphology and physiology of low forms of life—e.g., torula, bacteria, spirogyra, moss fern; the general morphology of flowering plants; diagnosis of the important British natural orders; medicinal plants. The examination in geology and physical geography will be limited to general principles, such as: the relations of the earth to the rest of the solar system; nature of the earth's crust and the chief kinds of rocks; general configuration of land and water, mountains, plains, islands, rivers, lakes, glaciers and icebergs, ocean currents, tides, winds, storms, dew, rain, climate, volcanoes, earthquakes, distribution of animal and vegetable life.

The appointments announced for competition will be filled from the list of qualified candidates, arranged in order of merit; but should it at any time be considered expedient to grant Commissions beyond those periodically competed for, the Admiralty have power to admit annually (*a*) two candidates—proposed by the governing bodies of schools of medicine in the United Kingdom—who have satisfactorily filled the office of house surgeon in a large civil hospital for at least six months; and (*b*) not more than six candidates, according to requirements, specially recommended by the governing bodies of such colonial universities as may be selected and whose qualifications are recognised by the General Medical Council. Candidates so proposed are to be approved by the Director-General of the Medical Department of the Navy and are to be certified by the governing body proposing them as duly qualified according to the regulations in force for the entry of candidates. In cases of colonial nominations, registration of professional qualifications may be deferred until after the arrival in England of a candidate who has been passed on the station, but a Commission as Surgeon will not be granted until the certificate of the Registrar of the Medical Council has been produced at the Medical Department of the Navy. Candidates from schools at home will be required to pass a physical examination in London which will be arranged for by the Medical Director-General. Colonial candidates will have to pass a physical and test examination before a board of Naval Medical Officers on the station. Successful candidates immediately after passing the examination in London will receive commissions as Surgeons in the Royal Navy, and will undergo a course of practical instruction in Naval Hygiene, &c., at Haslar Hospital. Three prizes of the approximate value of £10 each will be awarded at the close of each session at Haslar to the students who have shown the greatest proficiency.

Surgeons on entry are only required to provide themselves with a pocket case of instruments, a stethoscope, and three clinical thermometers. All other instruments are provided at the public expense.

Promotion.

An Inspector-General of Hospitals and Fleets will be selected from amongst Deputy Inspectors-General who have in that rank three years' full pay service and who have not at any time declined foreign service except for reasons which the Lords Commissioners of the Admiralty regard as good and sufficient.

A Deputy Inspector-General of Hospitals and Fleets will be selected for ability and merit from amongst Fleet Surgeons.

(*a*) Subject to the approval of the Lords Commissioners of the Admiralty rank as Fleet Surgeon will be granted to Staff Surgeons at the expiration of eight years from the date of promotion to Staff Surgeon, provided they are recommended by the Medical Director-General and have not declined service except for reasons which in the opinion of the Lords Commissioners of the Admiralty are satisfactory. (*b*) Special promotions from the rank of Staff Surgeon to that of Fleet Surgeon will be made at their Lordships' discretion in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and will not exceed the rate of one in two years; the total number at any one time of Fleet Surgeons holding that rank by such special promotions will not exceed six.

(*a*) Rank as Staff Surgeon will be granted, subject to their Lordships' approval, to surgeons at the expiration of eight years from the date of entry, provided they are recommended by the Medical Director-General, and have passed such examination as may be required after completion of five years from the date of entry in the rank of surgeon. (*b*) Special promotions will be made at their Lordships' discretion to the rank of Staff Surgeon in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and not exceed the rate of one a year. The total number at any one time of Staff Surgeons holding that rank by such special promotions will not exceed eight. No officer will be so promoted unless he passes the examination prescribed for other surgeons, but in such a case the requirement of five years' time in rank of surgeon will be dispensed with. (*c*) When a surgeon's promotion to the rank of Staff Surgeon has been retarded by failure to pass the qualifying examination he will, should he pass and be promoted, be dealt with as follows. He will be granted the seniority as Staff Surgeon he would have received had he passed in ordinary course. He will reckon service for increase of full and half pay only from the date of appointment to full pay as Staff Surgeon. If on half pay, or if placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination. Where delay in passing the qualifying examination may be due to unavoidable circumstances special consideration will be given. (*d*) The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course and their names will then be placed in the official navy list, except in the case of candidates who hold, or are about to hold, a post as resident medical officer or surgical officer to a recognised civil hospital. These candidates will retain the position in the list which they obtained on entry, and when their period of service as resident officer is over they will join the next Haslar course and will be required to obtain qualifying marks. Surgeons entered without competition will take seniority next after the last surgeon entered at the same time by competition. (*e*) The examination for promotion to the rank of staff surgeon will be held by the Examining Board, to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing and will include medicine, surgery, pathology, general hygiene, naval hygiene. Earlier promotion to the rank of staff surgeon may be granted to those surgeons who, before entry, have held the post of legally qualified resident medical or surgical officer to a civil hospital of not less than 100 beds for a period of not less than six months, provided their conduct and professional abilities have been favourably reported on during the time they have served in the Navy. They may be granted from six months to one year's seniority, according to the time they have held their civil appointments, but in no case will more than one year's seniority be granted. This only applies to officers who enter by competition (Para. 4 (*f*)). A candidate who at the time of passing the examination for entry into the medical branch of the Royal Navy holds, or is about to hold, an appointment as resident medical or surgical officer in a recognised civil hospital, may be allowed to serve in such civil appointment provided that the period of such service after the date of entry into the Royal Navy does not exceed one year. Pay from naval funds will be withheld from officers while thus serving, but the time concerned will reckon for increase of full and half pay while on the active list, and retired pay or gratuity on retirement or withdrawal, except that no officer will be allowed to retire on a gratuity until he has completed four years' service exclusive of the time spent as resident medical or surgical officer. The eligibility of this appointment will also be decided by the Medical Director-General.

Full Pay and Allowances.

Rank.	Daily.	Yearly.
Surgeon—	£ s. d.	£ s. d.
On entry	0 14 0	255 10 0
After 4 years' full-pay service	0 17 0	310 5 0
Staff Surgeon (or Surgeon over 8 years)—		
On promotion	1 0 0	365 0 0
After 4 years' full-pay service in rank ...	1 4 0	438 0 0
Fleet Surgeon—		
On promotion	1 7 0	492 15 0
After 4 years' service in rank	1 10 0	547 10 0
„ 8 „ „	1 13 0	602 5 0
„ 12 „ „	1 16 0	657 0 0
Deputy Inspector-General	2 2 0	766 10 0
Inspector-General	—	1300 0 0 Consolidated.

The medical officers in charge of the following hospitals and sick quarters will be granted charge pay: *Haslar, Plymouth, Chatham, Malta, Hong-Kong, Bermuda, Portland, Yarmouth, Haulbowline, Cape, Gibraltar, Yokohama, and Ascension.* The rate of charge pay will be as follows:—

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[1] If any doubt should arise on this question the burden of clear proof that he is qualified will rest upon the candidate himself.

	s.	*d.*	
Inspectors-General...	10	0	a day.
Deputy Inspectors-General	7	6	
Fleet Surgeons...	5	0	"
Staff Surgeons...	2	6	"

The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows:—

—	At home.	Abroad.
	£	£
Deputy Inspectors-General	67	112
Fleet Surgeons and Staff Surgeons...	53	112
Surgeons	39	108*

* Except at Malta, where the allowance will be £70, but servants will be provided at the public expense. These allowances are also granted to medical officers of marine divisions and dockyards.

An allowance of 5*s.* a day, in addition to full pay, is granted to the senior medical officer, being a Fleet or Staff Surgeon, of a flag-ship bearing the flag of a Commander-in-Chief on a foreign station or of the Commander-in-Chief of the Channel Fleet or North America and Particular Service Squadron. An allowance of 2*s.* 6*d.* a day is granted to the senior medical officer, being a Fleet or Staff Surgeon, of the ship of a Commodore or of a senior officer commanding a foreign station. An allowance of 2*s.* 6*d.* a day may also be granted to the senior medical officer, being a Fleet or Staff Surgeon, in ships carrying the flags of flag officers or the broad pendants of Commodores not commanding stations. The following charge allowances may be granted to medical officers in charge of hospital ships: if above the rank of fleet surgeon, 5*s.* a day; and if of the rank of fleet surgeon or junior, 3*s.* 6*d.* a day. The Fleet and Staff Surgeons serving in the Admiralty and the Marine Rendezvous will be granted the Hospital allowance of £53 a year in addition to the usual lodging money. Medical officers conducting the course of instruction at Haslar Hospital will receive the following allowances: two senior officers employed upon this duty, £150 a year each; the junior officer assisting, £50 a year; and the junior officer instructing the Sick Berth Staff, £50 a year. The junior officer instructing the Sick Berth Staff at Plymouth, £50 a year Medical officers employed elsewhere than at a hospital, and not victualled in kind, receive an allowance of 1*s.* 6*d.* a day in lieu of provisions, fuel, and lights. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

Half Pay.

Rank.	Daily.	Yearly.
Surgeon—	£ *s.* *d.*	£ *s.* *d.*
Under 2 years' full-pay service	0 6 0	109 10 0
After 2 years' full-pay service	0 7 0	127 15 0
" 4 " "	0 8 0	146 0 0
" 6 " "	0 9 0	164 5 0
Staff Surgeon (or Surgeon over eight years)—		
On promotion	0 10 0	182 10 0
After 2 years' service in rank	0 11 0	200 15 0
" 4 " "	0 12 0	219 0 0
" 6 " "	0 13 0	237 5 0
Fleet Surgeon—		
On promotion	0 14 0	255 10 0
After 2 years' service in rank	0 15 0	273 15 0
" 4 " "	0 17 0	310 5 0
" 6 " "	0 18 0	328 10 0
" 8 " "	0 19 0	346 15 0
" 10 " " (maximum) ...	1 0 0	365 0 0
Deputy Inspector-General—		
On promotion	1 5 0	456 5 0
After 2 years' full-pay service in rank	1 7 0	492 15 0
" 4 " "	1 9 0	529 5 0
Inspector-General	1 18 0	693 10 0

Candidates will do well to notice that the regulations issued to applicants do not put any limit on the amount of half-pay service which they may be compelled to undergo.

Retirement.

Compulsory retirement will be as follows:—

Inspector and Deputy Inspector-General of *Hospitals* and Fleets.	At the age of 60, or at any age, if he has had three years' non-employment in any one rank, or after four years' continuous non-employment in any two ranks combined. Except that if in any particular case the Lords Commissioners of the Admiralty may consider that *the interests of the* public service will be materially advanced by the further retention of an Inspector-General of Hospitals and Fleets on the active list, the age for the retirement of such Inspector-General may be extended to 62.	*To be retired* irrespective *of* age if found physically unfit for service.
Fleet Surgeon, Staff Surgeon, and Surgeon.	At the age of 55, or at any age, if he has had three years' non-employment in any one rank, or after four years' continuous non-employment in any two ranks combined.	

The special attention of candidates is directed to the following rules under which officers are allowed to withdraw from the service after four years' full pay service in the Royal Navy, with the advantage of joining the Reserve of Naval Medical Officers:—

After four years' service in the Royal Navy, an officer, if he wishes, may pass from active service to the Reserve of Naval Medical Officers, when he will reap the following advantages:—

(1) He will be granted a gratuity of £500 on passing into the Reserve.

(2) His name will be retained in the Navy List; he will retain his naval rank and be entitled to wear his naval uniform under the regulations applying to officers on the retired and reserved lists of His Majesty's Navy.

(3) If he agree to remain in the Reserve for four years he will receive a retaining fee of £25 per annum. If at the expiration of this period he agree to remain in the Reserve for a further period of four years he will continue to receive the same retaining fee.

Should an officer prefer it, however, he may simply enter the Reserve for a period not exceeding eight years, with power to give six months' notice of his intention to resign his position at any time (in which case he will receive no retaining fee). He may also adopt this method of Reserve service after the expiration of four years served under the *conditions referred to in (3), by renouncing his retaining fee for his last* four years' service in the Reserve.

No officer will be allowed to remain in the Reserve for a longer period than eight years.

Officers of the Reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service they will receive the rate of pay—viz., 17*s.* a day and allowances—to which they would have been entitled after four years' service on the active list.

Voluntary retirement and withdrawal will be allowed as follows. (*a*) Every officer will have the option, subject to their Lordships' approval, of retiring after 20 years' full-pay service on the scale of retired pay provided in Paragraph 16, or with a gratuity on the scale provided *in that paragraph if not eligible for retired pay.* (*b*) *At the expiration* of four, eight, 12, or 16 years' full-pay service every officer will be permitted, *subject to their Lordships' approval,* to withdraw from the Naval Service, receiving a gratuity on the scale laid down in Paragraph 16. The name of an officer so withdrawing will be removed from the lists of the Navy, with which all connexion will then be severed, except in the case of officers who withdraw after four years who are liable to serve in the Reserve. (*c*) Voluntary retirement and withdrawal at the discretion of their Lordships will be allowed, as a rule, only when an *officer is unemployed or serving* at home. Under very special circumstances, however, it may be permitted in the case of an officer serving abroad, provided he pays his successor's passage to relieve him. (*d*) Applications from officers to retire or withdraw or resign their commissions will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry.* In order that arrangements may, as far as possible, be made for the *relief of officers* who may wish to withdraw on a gratuity it is desirable that six months' notice of their wish should be forwarded for the consideration of their lordships.

* The Admiralty reserve to themselves power to remove any officer from the list for misconduct.

Gratuities and retired pay will be awarded on retirement and withdrawal on the under-mentioned scale (Paragraph 16):—

Rank.	Gratuities.	Daily.	Yearly.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Surgeon, Staff Surgeon, and Fleet Surgeon—			
After 4 years' full-pay service	500 0 0	—	—
After 8 years' full-pay service (including service allowed by Para. 4 (*f*)) ...	1000 0 0	—	—
After 12 years' full-pay service (including service allowed by Para. 4 (*f*)) ...	1500 0 0	—	—
After 16 years' full pay service (including service allowed by Para. 4 (*f*)) ...	2250 0 0	—	—
Fleet Surgeon—			
After 20 years' service (including proportion of half-pay time)	—	*1 0 0	365 0 0
After 24 years' service (including proportion of half-pay time)	—	*1 2 6	410 12 6
After 27 years' service (including proportion of half-pay time)	—	*1 5 0	456 5 0
After 30 years' service (including *proportion of* half-pay time)	—	*1 10 0	547 10 0
Deputy Inspector-General ...	—	1 15 0	638 15 0
Inspector-General	—	2 0 0	730 0 0

* To obtain this rate an officer must hold the commission of Fleet Surgeon.

An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the Service, will receive the half pay of his rank, or, with the consent of their Lordships, a gratuity on the scales given in Paragraphs 16 and 18 (*b*), but such officer will not be entitled to receive any special compensation for the disability in addition to the gratuity as above (Paragraph 17).[2]

An officer retired with less than 20 years' service on account of disability, contracted in but not attributable to the Service, will receive—(*a*) if he has over eight years' *full-pay service*, either a *gratuity* on the scale given in Paragraph 16 or half-pay according as *their Lordships* think fit; (*b*) if he has less than eight years' *full-pay* service, such gratuity as their Lordships think fit, not exceeding the rate of £125 for each year of full-pay service (Paragraph 18). In circumstances other than those specified in Paragraphs 17 and 18, and other than misconduct, neglect of duty, &c., an officer retired with less than 20 years' service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid down in Paragraph 16 if he has eight years' full-pay service, and on that provided in Paragraph 18 (*b*) should his full-pay service not amount to eight years. The power vested in their Lordships of granting reduced rates of half pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit. An officer retiring after 20 years' full-pay service will be eligible, if recommended by the Medical Director-General for distinguished or meritorious service, to receive a step of honorary rank, such step to be awarded at their Lordships' discretion, and not to confer any claim to increase of retired pay or of widow's pension. All retired officers will be liable, till the age of 55, to serve in time of declared national emergency, in a rank not lower than that held on retirement. This liability does not exist in cases of officers who withdraw from the Naval Service receiving a gratuity after 8, 12, or 16 years' full pay service. Retired officers will receive special consideration as regards appointments on shore connected with the Admiralty now filled by civilians.

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[2] If the health of a surgeon breaks down before he completes 20 years' service, even if his disability be contracted in the Service or be due to *climatic causes*, he is liable at once to be placed on the retired list, receiving only a gratuity. This point should be well noted, as it is a most unjust one.

Widow's Pension.

When an officer retires or withdraws *on a gratuity* his widow and children will have no claim to pension or compassionate allowance. Officers serving in the reserve who during re-employment are injured on duty, or lose their lives from causes attributable to the service, come under the same regulations as regards compensation for themselves, or pensions and compassionate allowances for their widows and children, as officers of the same rank on the permanent Active List.

Miscellaneous.

A special cabin will be appropriated to the Fleet or Staff Surgeon or the Surgeon in charge of the medical duties in each ship. Special regulations have been made as regards the mess expenses of medical officers appointed to the several divisions of Royal Marines for limited periods. Every medical officer will be required to undergo a post-graduate course of three months' duration at a Metropolitan Hospital once in every eight years (should the exigencies of the Service permit), and this as far as possible during his Surgeon's, Staff Surgeon's, and Fleet Surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay and will be granted lodging and provision allowances and travelling expenses as for service under the Regulations to and from his home or port; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following: (1) the medical and surgical practice of the hospital, including instruction in anæsthetics; (2) a course of operative surgery on the dead body; (3) a course of bacteriology; (4) a course of ophthalmic surgery, particular attention being paid to the diagnosis of errors of refraction; and (5) a practical course of skiagraphy. Relative rank is accorded to medical officers as laid down in the King's Regulations and Admiralty Instructions.

The Admiralty has made a considerable effort to make the Medical Service attractive to men of a good professional stamp. The new regulations promulgated on Oct. 31st, 1903, are of course included in the above account of the Naval Medical Service. By these regulations promotion was accelerated, special promotion in the lower grades was made possible in cases of distinguished service or conspicuous professional merit, and encouragement to enter the service, in the shape of earlier promotion, was given to men who have held resident posts in recognised hospitals. A feature of the latest regulations is the permission to withdraw at the end of four years with a gratuity of £500. The pay has been increased but, in respect of allowances, the medical officers of the navy, up to the senior ranks, are not as well off as those of the Royal Army Medical Corps. In spite of the steps taken by the Admiralty there is still much discontent among naval medical officers, and such discontent will exist until the medical officers are unhampered in the performance of their important work by the executive officers. The medical officers should have control over the sick bay staff in ships, and over nurses and other attendants in hospitals, and executive officers should no longer figure as presidents of "medical surveys." The authority of the Director-General must be made adequate. More care must also be taken that medical officers are assigned fitting cabin accommodation. To make the service thoroughly efficient the medical officers must be given authority and position commensurate with their responsibilities.

THE ARMY.

Consequent upon the issue of the Royal Warrant published in Army Orders dated July 1st, 1898, the Army Medical Staff and the Medical Staff Corps were formed into the Royal Army Medical Corps. Medical officers also have been placed, as regards sick leave of absence on full pay, on the same footing as that laid down for regimental officers. By a Royal Warrant dated Nov. 10th, 1891, Art. 1208*b* of the Pay Warrant was revised by inserting the words "an officer of our Royal Army Medical Corps" after the words "combatant officer," thus giving medical officers an equal title with combatant officers to reckon time on half-pay towards retirement when the half-pay has been due to ill-health contracted in the performance of military duty. Under the Royal Warrant of July, 1895, time on half-pay not exceeding a year may in similar circumstances also reckon towards promotion. In the New Royal Warrant it was announced that the late Queen had been pleased to approve of the following ranks for the officers of the Royal Army Medical Corps: Colonel, Lieutenant-Colonel, Major, Captain, and Lieutenant. The Warrant also states that the Medical Staff of the Army shall in future consist of Surgeon-Generals (ranking as Major-Generals). Officers of the Royal Army Medical Corps holding appointments in the Household Troops are to be borne as seconded officers on the establishment of the Royal Army Medical Corps.

REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS (PROMULGATED BY ARMY ORDERS DATED MAY 1ST, 1902).

A candidate for a commission in the Royal Army Medical Corps must be 21 years and not over 28 years of age at the date of the commencement of the entrance examination. He must possess a registrable qualification to practise. Candidates who are over the regulated limit of age at the date of the Examination will be permitted to deduct from their actual age any period of service in the field after Oct. 1st, 1899, that they could reckon towards retired pay and gratuity if such deduction will bring them within the age limit. A candidate must complete the subjoined form of application and declaration and submit it to the Director-General, A.M.S., in sufficient time to permit of reference to the medical school in which the candidate completed his course as a medical student.

*Application of a Candidate for a Commission in the Royal Army Medical Corps.**

1. Name in full... ... ...
2. Address ... ...
3. Date of birth † ... ...
4. Registrable qualifications ... .
5. Academic and other distinctions ... ...
6. Name of the Dean or other responsible authority of the school in which the candidate completed his course as a medical student ... ...
7. *Particulars* of any commission or appointment held in the public services ... ...
8. Date of examination at which the candidate proposes to present himself ... ...

Declaration.

(N.B.—A mis-statement by the candidate will invalidate any subsequent appointment and cause forfeiture of all privileges for services rendered.)

I hereby declare upon my honour that the above statements are true to the best of my knowledge and belief and further:—

1. That I am a British subject of unmixed European blood.

2. That I am not, as far as I know, at present suffering from any mental or bodily infirmity, or physical imperfection or disability that is likely to preclude me from efficiently discharging the duties of an officer in any climate.

3. That I will fully reveal to the Medical Board, when physically examined, all circumstances within my knowledge that concern my health.

I also declare that my vision is good with either eye (*with or without* the aid of glasses as the case may be).

Signature ....
Date..............................

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* All communications to be addressed to the Secretary of the Army Council, 68, Victoria-street, London, S.W.

† A certificate of registration of birth or other satisfactory evidence of age, such as a declaration made before a magistrate by one of his parents or guardians, giving the date of his birth, to be furnished.

The dean of the candidate's school will be requested by the Director-General to render a confidential report as to his character, conduct, professional ability, and fitness to hold a commission in the corps and to this report special importance will be attached. A candidate whose application is regarded as satisfactory will be directed to appear before the Director-General, Army Medical Service, a few days (usually on the fourth Thursday of the month) preceding the examination. The Director-General will decide if the candidate may be allowed to compete for a commission. If approved, he will then be examined as to his physical fitness by a board of medical officers. The following is the order of the examinations:—

1. A candidate for a commission in the Royal Army Medical Corps must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of military duty.

2. The examination will be conducted by a board of medical officers.

3. The attention of the board will be directed to the following points: (*a*) That the correlation of age, height, weight, and chest

girth is equal or superior to that which is given in the following table:—

Physical Equivalents.

Age.	Height without shoes.	Chest.	
		Girth when expanded.	Range of expansion.
	Inches.		
21 and upwards.	62½ and under 65	35 inches.	2 inches.
	65 " 68	35½ "	2 "
	68 " 70	36 "	2 "
	70 " 72	36½ "	2½ "
	72 and upwards.	37 "	2½ "

(*b*) Measurement of height. The candidate will be placed against the standard with his feet together and the weight thrown on the heels and not on the toes or outside of the feet. He will stand erect without rigidity and with the heels, calves, buttocks, and shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar and the height will be noted in parts of an inch to eighths.

(*c*) Measurement of chest. The candidate will be made to stand erect with his feet together and to raise his hands above his head. The tape will be carefully adjusted round the chest with its posterior upper edge touching the inferior angles of the shoulder blades and its anterior lower edge the upper part of the nipples. The arms will then be lowered to hang loosely by the side and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The candidate will then be directed to empty his chest of air as much as is possible. This is best done by continuous whistling with the lips as long as sound can be produced. The tape is carefully gathered in during the process and when the minimum measurement is reached it is recorded. He will then be directed to inflate his chest to its utmost capacity. This maximum measurement will likewise be noted. The girth with the chest fully expanded and the range of expansion between the minimum and maximum will then be recorded.

(*d*) Weight. The candidate will also be weighed and his weight recorded in the proceedings of the Board.

The regulations regarding the examination of eyesight are as follows:—

1. If a candidate can read D.=6 at 6 metres (20 English feet) and D.=0·6 at any distance selected by himself, with each eye without glasses, he will be considered *fit*.

2. If a candidate can only read D.=24 at 6 metres (20 English feet) with each eye without glasses, his visual deficiency being due to faulty refraction which can be corrected by glasses which enable him to read D.=6 at 6 metres (20 English feet) with one eye, and D.=12, at the same distance with the other eye, and can also read D.=0·8 with each eye without glasses, at any distance selected by himself, he will be considered *fit*.

3. If a candidate cannot read D.=24 at 6 metres (20 English feet) with each eye without glasses, notwithstanding he can read D.=0·6, he will be considered *unfit*. Normal vision of one eye may be sufficient to allow a higher defect in the other, to the extent of one-sixth, if the defect is simple error in refraction remedied by glasses. The candidate must be able to read the tests without hesitation in ordinary daylight. (N.B.—Snellen's test types will be used for determining the acuteness of vision.) Squint, inability to distinguish the principal colours, or any morbid conditions, subject to the risk of aggravation or recurrence in either eye, will cause the rejection of a candidate.

The following additional points will then be observed. (*b*) That his hearing is good. (*c*) That his speech is without impediment. (*d*) That his teeth are in good order. Loss or decay of the teeth will be considered a disqualification. Decayed teeth if well filled will be considered as sound. (*e*) That his chest is well formed and that his heart and lungs are sound. (*f*) That he is not ruptured. (*g*) That he does not suffer from hydrocele, varicocele, varicose veins in a severe degree, or other disease likely to cause inefficiency. A slight defect if successfully cured by operation is not a disqualification. (*h*) That his limbs are well formed and developed. (*i*) That there is free and perfect motion of all the joints. (*j*) That his feet and toes are well formed. (*k*) That he does not suffer from any inveterate skin disease. (*l*) That he has no congenital malformation or defect. (*m*) That he does not bear traces of previous acute or chronic disease pointing to an impaired constitution. *In any doubtful case the Board should further state:* (*n*) Whether he is in their opinion of pure European descent. If a candidate be pronounced physically fit for service at home and abroad he will be eligible to present himself at the next entrance examination which will be held twice in the year, usually in January and July.

The Army Council reserves the right of rejecting any candidate who may show a deficiency in his general education.

An entrance fee of £1 is required from each candidate admitted to the examination and is payable at the conclusion of his physical examination, if pronounced fit.

Candidates who have been specially employed in consequence of a national emergency, either as an officer or in a position usually filled by an officer, will be allowed to reckon such service towards retired pay and gratuity, and if over the regulated limit of age at the date of commencement of the competitive examination shall be permitted to deduct from their actual age any period of that service, if such reduction will bring them within the age limit. The duration of service is to be reckoned from the date on which the candidate commenced such service, except in the case of candidates who have served for two or more periods at short intervals. In such cases the total period of service to be considered in granting marks at the entrance examination shall be specially determined.

A candidate successful at the entrance examination will be appointed a Lieutenant on probation and will be required to pass through such courses of instruction as the Army Council shall decide and, after passing the examinations in the subjects taught and satisfying the Director-General that he possesses the necessary skill, knowledge, and character for permanent appointment to the Royal Army Medical Corps, his commission as Lieutenant will be confirmed. The commission shall bear the date of passing the entrance examination.

Before the commission of a Lieutenant on probation is confirmed he must be registered under the Medical Acts in force in the United Kingdom at the time of his appointment.

The precedence of Lieutenants among each other shall be in order of merit as determined by the combined results of the entrance examination and the examinations undergone while on probation, except that the position on the list of a lieutenant on probation, seconded to hold a resident appointment in a recognised civil hospital shall be determined by the place he has gained at the entrance examination. A lieutenant so seconded will be required, at the conclusion of his hospital appointment, to attend the course of instruction at the Royal Army Medical College; but the subsequent examinations will be of a qualifying character and will not influence his position on the seniority list of the Corps.

Lieutenants when appointed on probation will receive instructions as to the provision of uniform.

EXAMINATIONS.

Subjects for the Entrance Examination.

Candidates will be examined by the examining board in medicine and surgery. The examination will be of a clinical and practical character, partly written and partly oral, marks being allotted under the following scheme.

Medicine (written).	Maximum marks.
A. Examination and report upon a medical case	125
B. Commentary upon a case in medicine	125
(Three hours allowed for A and B together.)	
Medicine (oral).	
A. Clinical cases; clinical pathology	75
B. Morbid Anatomy and Morbid Histology...	75
(One quarter of an hour allowed for each table.)	
Surgery (written).	
A. Examination and report upon a surgical case	125
B. Commentary upon a case in surgery	125
(Three hours allowed for A and B together.)	
Surgery (oral).	
A. Clinical cases, including diseases of the eye; surgical instruments and appliances	75
(One quarter of an hour allowed for this table.)	
B. Operative surgery and surgical anatomy	75
Total marks	800

The following headings are published as a guide to candidates in drawing up their reports on cases:—(*a*) A brief history of the case as given by the patient, including such points only (if any) in the family or personal history as have a distinct bearing upon the present illness or incapacity. (*b*) A detailed account of the subjective symptoms and physical signs elicited by the candidate's personal examination of the patient, noting the absence of any which might be expected to be present in a similar case. (*c*) Where there is any reasonable doubt in the mind of the candidate as to an exact diagnosis he is to give the alternatives, with his reasons for making the selection. (*d*) A commentary upon the case as a whole, pointing out the symptoms which may be considered typical and those which appear to be unusual or only accidental complications. (*e*) Suggestions as to treatment, both immediate and possibly necessary at a later date. (*f*) A forecast of the progress and probable termination of the case.

Similarly the commentary on the report of a case submitted to the candidate should discuss: (*a*) The family and personal history and other conditions preceding the development of the condition described. (*b*) The relative significance of the physical signs, symptoms, other indications of disease noted, and the general clinical aspects of the case. (*c*) The diagnosis, with reasons for selection of the most probable, when a positive diagnosis cannot be attained. (*d*) The treatment, dietetic, medicinal, operative, &c., including a criticism of the plan adopted, and alternative schemes of treatment in case of disagreement. (*e*) The morbid appearances and an account of the post-mortem examination (if any).

The examination will be held in London and will occupy about four days.

The appointments announced for the competition will be filled up from the list of qualified candidates arranged in the order of merit, as determined by the total number of marks each has obtained. Having gained a place in this entrance examination the successful candidates will undergo two months' instruction in hygiene and bacteriology, after which they will be examined in these subjects. The maximum number of marks obtainable at this examination will be 100. It has been determined that this course shall be delivered in London and not as heretofore at Netley. A military medical staff college is now being built in London and until the new buildings are completed the instruction will be given in the laboratories of the Conjoint Board on the Thames Embankment. At the present time the professors are Major C. G. Spencer, M.B., F.R.C.S., in the department of military surgery; Lieutenant-Colonel Robert J. S. Simpson, C.M.G., in the department of military medicine; Major W. B. Leishman, M.B., in the department of bacteriology; and Lieutenant-Colonel A. M.

Davies in that of hygiene, Captain D. Harvey, M.B., and Captain C. E. P. Fowler, F.R.C.S., both of the Royal Army Medical Corps, being the respective assistant professors. Colonel H. R. James, F.R.C.S., the commandant of the Medical Staff College, instructs in hospital and corps administration, in the duties of officers on transports, and in the examination of recruits. The course of hygiene has hitherto comprised the examinations of water and air, the general principles of diet with the quality and adulterations of food and beverages, the sanitary requirements of barracks, hospitals, and camps, the consideration of the clothing, duties, and exercises of the soldier, and the circumstances affecting his health, with the best means of preventing disease and instruction in the mode of preparing the various statistical and other returns required of the medical officer. The pathological course has up to the present time included bacteriology and demonstrations in physiological chemistry. The surgical course consists of lectures and demonstrations in military surgery and lectures on errors of refraction from a military point of view. On completion of the above course Lieutenants on probation will be ordered to proceed to the depôt of the Royal Army Medical Corps at Aldershot for a three months' course of instruction in the technical duties of the corps, and at the end of the course will be examined in the subjects taught. The maximum number of marks obtainable at this examination will be 100. A Lieutenant on probation who fails to qualify in either of these examinations will be allowed a second trial, and, should he qualify, will be placed at the bottom of the list. Should he again fail in either examination his commission will not be confirmed.

EXAMINATIONS FOR PROMOTION IN THE ROYAL ARMY MEDICAL CORPS.

These examinations are intended to test the progress and proficiency of officers in those branches of knowledge which are essential to their continued efficiency.

Lieutenant before Promotion to Captain.—(For Lieutenants appointed after March 31st, 1901.) This examination may be taken at any time after completing 18 months' service and will be held in the military district in which the officer is serving. The subjects of this examination, which are detailed in the King's Regulations, are as follows: (1) squad, company, and corps drills and exercises; (2) the duties of wardmasters and stewards in military hospitals, and the preparation of returns, accounts, and requisitions connected therewith; (3) duties of executive medical officers; and (4) military law.

Captains before Promotion to Major.—(For Captains promoted to that rank after July 27th, 1895.) Captains will be examined under the rules laid down in Paragraph 23 and will be eligible for acceleration in their promotion to the rank of Major under Article 352 of the Royal Warrant, subject to the following restrictions—(*a*) The acceleration which can be gained by a Captain promoted to that rank in January, 1896, will be limited to six months, and an officer gaining this acceleration will take precedence after the last Captain promoted Major on completion of 12 years' service. (*b*) The acceleration which can be gained by a Captain promoted to that rank in July, 1896, will similarly be limited to 12 months, and an officer gaining this acceleration will take precedence next after the last Captain promoted to that rank in January, 1896, who may have gained six months' service. (*c*) A Captain promoted to that rank in January, 1897, can gain the full acceleration but will take precedence after any captain promoted to that rank in July, 1896, who may have gained 12 months' acceleration. (*d*) Officers gaining acceleration under (*a*) will take precedence *inter se* in order as they have obtained a special certificate or passed in the first, second, or third class, and a similar course will be followed under (*b*) and (*c*). (*e*) In all other cases an officer who gains accelerated promotion will be placed for precedence after the last officer (whether subject to acceleration or not) promoted approximately 3, 6, 12, or 18 months before him.

This examination, which may be taken at any time after completing five years' service, will be held in London on the termination of a period of special study. Courses in military surgery, in x rays, and in refraction will be held by Major C. G. Spencer, M.B., F.R.C.S. The examination will consist of written papers, essays, oral and practical examinations in the following subjects, which are detailed in the King's Regulations: (1) medicine; (2) surgery; (3) hygiene; (4) bacteriology and tropical disease, and (5) one special subject from the subjoined list to which additions may from time to time be made: (*a*) bacteriology; (*b*) dental surgery; (*c*) dermatology, including venereal diseases; (*d*) midwifery and gynæcology; (*e*) operative surgery, advanced; (*f*) ophthalmology; (*g*) otology, including laryngology and rhinology; (*h*) psychological medicine; and (*i*) State medicine. Captains serving in that rank before July 27th, 1895, will be promoted under the old regulations contained in Appendix I., Regulations for Army Medical Services, and will not be eligible for acceleration.

Majors before Promotion to Lieutenant-Colonel (for Majors promoted to the rank after March 31st, 1895).—This examination, which may be taken at any time after three years in the rank of Major, will be held in the military district in which the officer is serving at times which will be duly notified. The subjects of this examination, which are detailed in the King's Regulations, are as follows: 1. Military law. 2. Army medical organisation in peace and war. 3. Sanitation of towns, camps, transports, &c. 4. The laws and customs of war, so far as they relate to the care of the sick and wounded. 5. One special subject from the subjoined list to which additions may from time to time be made: (*a*) medical history of important campaigns; and (*b*) a general knowledge of the Army Medical Services of other Powers.

PAY.

The following shall be the rates of pay, additional pay, and charge pay of the Army Medical Staff and Royal Army Medical Corps:—

Army Medical Service.	Inclusive of all allowances except field and travelling allowances (yearly).
At Headquarters.	£
Director-General	2000
Deputy Director-General	1500
Assistant Director-General	850
Deputy Assistant Director-General	750
	Exclusive of allowances (daily).
At Other Stations.	£ s. d.
Surgeon-General	3 0 0
Colonel	2 0 0
Lieutenant-Colonel	1 10 0
Lieutenant-Colonel specially selected for increased pay after at least eight years' service abroad	1 15 0
Major	1 3 6
After three years as such	1 6 0
Captain	0 15 6
After seven years' total full-pay service	0 17 0
After ten years' total full pay service	1 1 0
Lieutenant on probation and Lieutenant	0 14 0
Adjutant of the Royal Army Medical Corps (Volunteers)	The pay of his rank.

A Captain of the Royal Army Medical Corps, holding the brevet rank of Major, shall receive pay at 2*s.* a day, in addition to the rates laid down.

Additional Pay.

An officer not serving on the Headquarters Staff appointed a member of the Advisory Board, £150 a year. An officer serving as secretary of the Advisory Board and Nursing Board, £100 a year. An officer under the rank of Lieutenant-Colonel holding an appointment as specialist, 2*s.* 6*d.* daily.

Charge Pay.

(*a*) An officer in charge of a general or other hospital, or of a division of a general hospital—

	Daily. s.	d.
If in charge of at least 50 beds	2	6
" " 100 "	5	0
" " 200 "	7	6
" " 300 "	10	0
(*b*) Senior medical officer, Royal Arsenal, not exceeding	10	0
(*c*) Officer in command of the Depôt, Royal Army Medical Corps	5	0
(*d*) The Senior officer of the Army Medical Service with an army in the field— A rate to be fixed by the Secretary of State, according to the magnitude of the charge.		
(*e*) In a command abroad— The senior medical officer, if the number of soldiers is 1500 or upwards	5	0

Extra-duty Pay.

An officer of the Royal Army Medical Corps, appointed to act as adjutant or quartermaster of the Royal Army Medical Corps (Militia) during preliminary drill or training shall receive extra-duty pay at the following rates:—

	Daily. s.	d.
Acting Adjutant	2	6
Acting Quartermaster	2	0

Reserve of Officers.

An officer of our Royal Army Medical Corps with at least three, but not more than six, years' service may be permitted by the Secretary of State to become an Army Reserve Officer for a period of seven years, and while so serving he shall receive pay at the rate of £25 a year. With the sanction of the Secretary of State such officer may be allowed to return to the active list, and if the period he has been in the reserve of officers amounts to at least one year, and not more than three years, he shall be allowed to reckon one-third of such period towards promotion, gratuity, and pension.

Seconded Officers.

A Lieutenant on probation who at the time of passing the examination for admission to the Royal Army Medical Corps holds, or is about to hold, a resident appointment in a recognised civil hospital may be seconded for a period not exceeding one year during which he holds the appointment. While seconded he shall not receive pay from army funds, but his service shall reckon towards promotion, increase of pay, gratuity, and pension.

PROMOTION.

Every promotion of a medical or departmental officer shall be made with the approval of the Army Council. Promotion by selection shall be given on the ground of ability and merit, due consideration being given, however, to length of efficient service.

An officer shall be eligible for promotion to the rank of Captain on the completion of three and a half years' service, and to the rank of Major on the completion of 12 years' service, provided that in each case he has previously qualified in such manner as may be prescribed by the Army Council.

Promotion to the rank of Lieutenant-Colonel shall be made by selection from officers who have completed at least 20 years' service, and have qualified in such manner as may be prescribed by the Army Council.

If an officer has passed with distinction the examination qualifying for promotion to the rank of Major, the period of service required to render him eligible for the rank of Major or Lieutenant-Colonel may be reduced as follows:—

	Months.
If he obtained a "special certificate"	18
,, *passed in the 1st Class*	12
,, ,, ,, 2nd ,, ...	6
,, ,, ,, 3rd ,, ...	3

Promotion to the rank of Colonel shall be made by selection from Lieutenant-Colonels who have been specially selected for increased pay and from Lieutenant-Colonels or Surgeon-Lieutenant-Colonels of the Household Troops specially recommended to the Army Council for distinguished service in the field. Promotion to the rank of Surgeon-General shall be made by selection from Colonels. A Colonel may also be promoted to the rank of Surgeon-General for distinguished service in the field. In cases of distinguished service in the field a departmental officer may, with the concurrence of the Lords Commissioners of the Treasury, be promoted from any rank or class to the next above it and shall, if promoted to a rank or class having a fixed establishment, remain supernumerary in such rank or class until the occurrence of the vacancy to which in the ordinary course he would have been promoted. An officer of the Royal Army Medical Corps is eligible for promotion to brevet rank. A captain after at least 6 years' service, a Major or Lieutenant-Colonel, may be promoted to the next higher rank by brevet for distinguished service in the field or for distinguished service of an exceptional nature other than in the field. If the officer dies before the date on which the notification of his promotion for distinguished service in the field appears in the *London Gazette* the promotion shall bear the date which it would have borne had the officer not died. Distinction in original investigation or research may, in the case of officers of the Royal Army Medical Corps, be regarded as "distinguished service of an exceptional nature other than in the field." An officer who does not qualify for promotion to the rank of Captain or Major within the periods specified shall be placed on the supernumerary list until he qualifies or is retired from the service. Service on the supernumerary list shall not reckon towards promotion, increase of pay, gratuity, or pension. An officer who may in the opinion of the Army Council have been prevented, in very special circumstances, from qualifying for promotion, or who, having failed to qualify, may have been debarred from further opportunity of qualifying, may be provisionally promoted. If, however, he fails to qualify on the first available opportunity his promotion shall be cancelled and he shall be retired from the service. An officer shall reckon towards his promotion any time, not exceeding one year, during which he may have been on half-pay on account of ill-health caused by military service; and also any time not exceeding two years during which he may have been on half-pay on reduction. An officer while seconded shall continue to be eligible for selection for promotion as if he had remained on the establishment, and his service while seconded shall reckon towards such promotion.

Rank.

The Director-General of the Army Medical Service shall hold the substantive rank of Surgeon-General and shall rank in relation to combatant officers as a Lieutenant-General if recommended by the Army Council. All other Surgeon-Generals shall rank as Major-Generals in relation to combatant officers.

Retirement.

An officer of the Army Medical Service will be permitted to retire in cases in which such retirement may be deemed expedient by the Secretary of State.

Scale of Retired Pay.

	£	s.	d.
	Yearly.		
Director-General after 3 years' service in the appointment (with 30 years' service)	1125		
Under 3 years' service as Director-General and after not less than 30 years' service	875		
	Daily.		
Surgeon-General	2	0	0
Colonel, R.A.M.C., and Surgeon-Colonel Household Troops	1	15	0
Lieutenant-Colonel, R.A.M.C., and Surgeon-Lieutenant-Colonel Household Troops—			
After 20 years' service	1	0	0
,, 25 ,, ...	1	2	6
,, 30 ,, ...	1	5	0
Lieutenant-Colonel, after having been in receipt of the increased pay (5s. a day additional) for 3 years, or a Brigade Surgeon-Lieutenant-Colonel of the Household Troops—			
Under 30 years' service	1	7	6
After 30 ,, ...	1	10	0
Major, or Surgeon-Major of the Household Troops—			
After 20 years' service	1	0	0
	Gratuity.		
Major or Captain—			
After 5 years' service in the rank of captain	1000		
,, 3 ,, ,, major	1800		
,, 6 ,, ,, ,, ...	2500		
Surgeon-Lieutenant Colonel or Surgeon-Major of the Household Troops—			
After 15 years' service...	1800		
,, 18 ,, ...	2500		

Except in the case of a Lieutenant-Colonel, an officer of the Army Medical Service, who, on voluntary retirement, has served for less than three years in the rank from which he retires, shall be entitled only to the gratuity or retired pay assigned to the next lower rank.

Retirement on Account of Age or Limitation of Period of Service.

The Director-General of the Army Medical Service shall retire on completion of the term of his appointment, and the retirement of other officers of the Army Medical Service except Quartermasters) shall be compulsory at the following ages: Surgeon-General, 60; Colonel, 57; and other officers, 55. A Major shall retire on completion of 25 years' service; or, if he fails to qualify for promotion, on completion of 20 years' service. A Lieutenant placed on the special list shall be retired if he fails to qualify at the next succeeding examination. A Captain placed on the special list shall, if he fails to qualify at the next succeeding examination, be retired at once on any gratuity for which he may be eligible, and if not so eligible shall be retired as soon as he completes five years' service in the rank of Captain. It shall be competent to the Secretary of State to place a medical officer on the retired list after 30 years' service.

Retirement on Account of Medical Unfitness.

An officer of the Army Medical Service or a medical officer of the Royal Malta Artillery placed on the half-pay list on account of medical unfitness shall, if not previously retired, be retired from the Army at the expiration of five years from the date on which he was placed on the half-pay list, or, if reported by the regulated medical authority to be permanently unfit for duty, on the officer's application, at such earlier date as may be decided by the Army Council.

An officer, whether on full pay or half pay, who, to the satisfaction of the regulated medical authority has been pronounced insane, shall be retired from the Army with the retired pay to which he would be entitled if reported by the regulated medical authority to be permanently unfit for duty. If his disability was not caused by military service and he is not entitled to permanent retired pay by length of service he shall receive temporary retired pay equivalent to the half pay and temporary retired pay, if any, which he would have received if his disability had been other than insanity.

Rates for Officers not qualified for Retired Pay on Voluntary Retirement.

If the unfitness was caused by military service retired pay equal to the half pay of his rank. If not so caused, provided the officer has at least 12 years' service, retired pay equal to the half pay of his rank for such period only, not exceeding five years from the date of the officer's retirement from the Army, after five years on half pay under Article 306, as the Secretary of State shall determine according to the merits of the case.

King's Honorary Physicians and Honorary Surgeons.

Six of the most meritorious officers of the Army Medical Service shall be named Honorary Physicians and six Honorary Surgeons. On appointment as Honorary Physician or Honorary Surgeon an officer under the rank of Colonel in the Royal Army Medical Corps may be promoted to the brevet rank of Colonel. A Lieutenant-Colonel appointed Honorary Physician or Honorary Surgeon shall receive pay at the rate laid down for a Colonel of the Royal Army Medical Corps when qualified for promotion to that rank.

Medical Officers of the Regiments of Household Troops.

Household Cavalry.

Commissions as surgeon-lieutenants in our Household Cavalry shall be given, on the nomination of the titular colonels of the regiments, to persons approved by our Army Council.

Promotion.

Household Cavalry.

A Surgeon-Lieutenant shall be eligible for promotion to the rank of Surgeon-Captain on completing three and a half years' service, and a Surgeon-Major for promotion to the rank of Surgeon-Lieutenant-Colonel on completing 20 years' service. Promotion from Surgeon-Captain to Surgeon-Major shall be by seniority on the medical establishment of the brigade, but only on a vacancy occurring for such promotion.

A Surgeon-Lieutenant, Surgeon-Captain, or Surgeon-Major of our Household Cavalry may be promoted for distinguished service in the field under the conditions laid down in Article 327.

Pay.

	Daily. £	s.	d.
Surgeon-Lieutenant-Colonel	1	10	0
Surgeon-Major	1	3	6
After three years' service as such	1	6	0
Surgeon-Captain...	0	15	6
After seven years' service	0	17	0
After ten years' service	1	1	0
Surgeon-Lieutenant	0	14	0

Promotion.

A medical officer of our Household Troops shall be eligible for extra pay under the provisions of Articles 367 and 368.

General Regulations.

In all matters not provided for by Articles 382 to 387 and 655 to 562 the medical officers of Our Household Troops shall be governed by the general regulations for regimental officers of our army.

Exchanges and Transfers.

An officer of the Royal Army Medical Corps shall be permitted to exchange with another officer of such corps, or with a medical officer of the Household Troops, under such conditions and regulations as may from time to time be made.

A medical officer of the Household Troops may be permitted to exchange with an officer of the Royal Army Medical Corps, provided that an officer exchanging into the Royal Army Medical Corps has fulfilled any conditions as to service abroad required of officers of such corps.

Exchanges between officers of the Royal Army Medical Corps under the rank of Major and medical officers of the Indian Military Forces, and transfers of such officers from either of the above services to the other, shall only be permitted subject to the approval of the Secretary of State for India in Council and on the following conditions: (1) That the officers have less than seven years' service; (2) that the senior officer exchanging takes the place of the junior on the list and shall not be promoted until the officer next above him has been so promoted; (3) that the junior officer exchanging is placed for seniority next below all medical officers whose commissions have the same date as his own; and (4) that the officer transferred is placed for seniority below all medical officers holding the same rank at the time of his transfer and shall not be promoted until the officer next above him has been promoted.

An Officer of the Royal Army Medical Corps who has exchanged or been transferred from the Indian Military Forces shall reckon, subject to the conditions of Article 364, his previous service with the said forces towards promotion, increase of pay, gratuity, and pension.

Leave of Absence.

Full pay during ordinary leave of absence for the period admissible in the case of a staff officer may be granted to a medical officer provided that no additional expense is incurred thereby.

When the periods of leave referred to in Article 457 have been exhausted or exceeded in consequence of sickness no further pay during ordinary leave shall remain due.

Sick Leave.

An officer of the Army Medical Staff or Royal Army Medical Corps may be allowed full pay during sick leave of absence on the same conditions as those laid down for regimental officers.

A regimental officer may be permitted to draw full pay for a period not exceeding one year during sick leave granted on the recommendation of the regulated medical authority, as defined in Article 1320, provided there is a reasonable probability that he will be fit to return to duty at the *expiration of his* leave.

In very special cases, such as loss of health from tropical service, active operations, or wounds, full pay may be issued for a period or periods of sick leave in excess of that laid down in Article 298, provided that the officer's sick leave shall not in all exceed eighteen months.

When a medical officer is sick at his station, whether in hospital, quarters, or lodgings, his absence from duty on account of sickness, if not exceeding 30 days in duration, and if duly certified by a medical officer, shall not be included in the period of absence on leave to which the issue of pay is limited by Article 457, provided the general officer commanding at the station considers that the circumstances of the case warrant such a concession. Any excess of such leave of absence on account of sickness at an officer's station beyond the period of 30 days shall come under the provisions of Article 458.

Service on the West Coast of Africa.

An officer volunteering for, or ordered to, the West Coast of Africa shall receive double pay while actually serving on the coast, and for any time spent at Madeira or the Canary Islands on sick leave, or on ordinary leave not exceeding 61 days in a year.

For each year's service on the coast a medical officer shall be entitled to full pay during 183 days' leave at home, and for every additional period beyond a year he shall have a proportionate extension of full pay during leave.

Each year or portion of a year served on the West Coast of Africa by an officer of the Royal Army Medical Corps shall reckon double towards voluntary retirement or retired pay, provided that he has served 12 months on the coast. In ordinary cases the 12 months may be made up of two separate periods of not less than six months each; and if an officer leaves the coast on account of sickness he may reckon any period of service on the coast, however short, in order to make up the 12 months' coast service which is required to entitle him to count his service double. Except when the officer has been invalided, any broken period, if amounting to less than six months' of service on the coast, and leave on full pay, shall not reckon double under this article.

Widows' Pensions.

Widows' pensions and compassionate allowances for children and other relatives of deceased officers are given under certain conditions specified in the Royal Warrant for Pay and Promotion. There is also an Army Medical Officers' Widows' Annuity Fund on mutual assurance principles.

Indian Medical Service.

The grades of officers in the Indian Medical Service are the same as those of the Army Medical Service and Royal Army Medical Corps. The Director-General will rank either as Major-General or Lieutenant-General as may be decided in each case by the Secretary of State for India in Council.

Regulations for the Examination of Candidates for Admission to the Indian Medical Service.

Candidates must be natural born subjects of His Majesty, of European or East Indian descent, between 21 and 28 years of age at the date of the examination, of sound bodily health, and in the opinion of the Secretary of State for India in Council in all respects suitable to hold commissions in the Indian Medical Service. They may be married or unmarried. They must possess a diploma or diplomas entitling them under the Medical Acts to practise both medicine and surgery in Great Britain and Ireland. Examinations for admission to the service usually take place twice in the year—in January and July.

They must subscribe and send in to the Military Secretary, India Office, Westminster, so *as to reach that address by the date fixed in the advertisement of the examination*, a declaration according to the annexed form.

Declaration and Schedule of Qualifications to be Filled up by Candidates.

* I ....

.... Years of Age in .... last, *vide accompanying Certificate*, a Candidate for employment in His Majesty's Indian Medical Service, do hereby attest my readiness to engage for that service, and to proceed on duty immediately on being gazetted.

I declare that I labour under no Mental or Constitutional Disease, nor *any imperfection* or disability that can interfere with the most efficient discharge of the Duties of a Medical Officer.

† I received my Medical Education and completed my course as Medical Student at..

‡ I have the Degree of A.M. or A.B. from the ....

I have the Degree of M.D. or M.B. from the ....

I have the following registrable qualifications :—..............................

....

....

(Signature at full length) ....

(Date)..

(Place of residence) ....

Candidates who desire to undergo the voluntary examination are to sign the following declaration:—

It is my intention to undergo the voluntary examination in .... §

* *Christian and surname at full length.*

† Give colleges and medical schools in full.

‡ The dates of graduations and the universities or colleges are to be stated. The candidate should state whether he has served in the medical departments of the army or navy or in the subordinate medical department in India.

§ State whether Botany or Zoology will be taken up.

This declaration must be accompanied by the following documents:—*a. Proof of age* either by Registrar-General's certificate, or, where such certificate is unattainable, by the candidate's own statutory declaration, form of which can be obtained at the India Office, supported, if required by the Secretary of State, by such evidence as he may consider satisfactory. A certificate of baptism which does not afford proof of age will be useless. *b.* A recommendation from some person of standing in society—not a member *of his own family*—to the effect that he is of regular and steady habits and likely in every respect to prove creditable to the service if admitted; and a certificate of moral character from a magistrate or a minister of the religious denomination to which the candidate belongs. *c.* A certificate of having attended a course of instruction for not less than three months at an ophthalmic hospital *or the* ophthalmic department of a general hospital, which course shall include instruction in the errors of refraction. *d.* Some evidence of having obtained a registrable qualification. *e.* In the case of natives of India or others educated in that country, in addition to the certificates referred to in paragraph 2 and paragraph 4 (*b*), (*c*), and (*d*), the candidate will be required to produce a certificate signed by the Director-General, Indian Medical Service, that he is a suitable person to hold a commission in the Indian Medical Service.

The Secretary of State for India reserves the right of deciding whether the candidate may be allowed to compete for a commission in His Majesty's Indian Medical Service.

The physical fitness of each candidate will be determined by a Board of Medical Officers who are required to certify that his vision is sufficiently good to enable him to pass the tests laid down by the regulations. Every candidate must also be free from all other organic disease and from constitutional weakness or other disability likely to unfit him for military service in India. The standard of eyesight is the same as for the Royal Army Medical Corps and the physical examination is in all respects the same (see under Royal Army Medical Corps). Candidates who pass the physical examination will be required to pay a fee of £1 before being permitted to compete. No candidate will be permitted to compete more than three times.

On proving possession of the foregoing qualifications the candidate will be examined by the Examining Board in the *following* subjects and the highest number of marks attainable will be distributed as follows:—

	Marks.
1. Medicine, including therapeutics...	1200
2. Surgery, including diseases of the eye	1200
3. Surgical anatomy and physiology	600
4. Pathology and bacteriology	900
5. Midwifery and diseases of women and children	600
6. Chemistry and pharmacy, with either botany or zoology...	600

N.B.—The examination in medicine and surgery will be in part practical and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside. The examination in chemistry will be limited to the elements of the science and to its application to medicine, pharmacy, and practical hygiene. No candidate shall be considered eligible who shall not have obtained at least *one third* of the marks obtainable in each of the above subjects and *one half* of the aggregate marks for all the subjects. No syllabus is issued in the subjects of botany and zoology; a general knowledge is required.

After passing this examination the successful candidates will be required to attend one entire course of practical instruction at the Army Medical School and elsewhere, as may be decided in (1) hygiene, (2) military and tropical medicine, (3) military surgery, and (4) pathology of diseases and injuries incidental to military and tropical service. This course will be of not less than four months' duration.[3]

During this period of instruction each candidate will receive an allowance of 14*s.* per diem, with quarters (where quarters are not provided, with the usual allowances of a subaltern in lieu thereof), with the usual fuel and light allowances of a subaltern, to cover all costs of maintenance, and he will be required to provide himself with uniform (viz., the regulation undress uniform and mess dress of a Lieutenant of the Indian Medical Service, as described in Indian Army Regulations, Vol. VII., with Sam Browne belt, but without the sword).

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[3] For the present it has been arranged that two months of the course will be spent in London where the probationers will be instructed with the lieutenants on probation for the Royal Army Medical Corps in Hygiene and Bacteriology. They will attend a course of instruction in tropical medicine and military surgery at the College. In our opinion as long as the lieutenants-on-probation of the Indian Medical Service receive their instruction at the College, the post of Professor of Medicine in the College should be held by a distinguished officer of the Indian Medical Service and not as at present by an officer of the Royal Army Medical Corps who has had no training as a teacher and does not possess any special knowledge of tropical diseases. The lectures on Military Medicine treat of tropical and other diseases to which soldiers are exposed in the course of their service, the mortality and invaliding by disease, in peace and war, at home and abroad, the management of lunatics under the conditions of military service, &c. The lieutenants-on-probation of both services will attend the New Millbank Hospital where they will be taught practically the details of the management of patients in a military hospital, and the registration of their diseases, the duties of invaliding, the modes of filling up the regulation statistical returns, and other service documents. No provision for instruction in lunacy has as yet been made in London. The course for the lieutenants-on-probation in London now lasts two months but it is proposed to extend it to three months and, now that the Netley course does not exist for the Indian Medical Service, the Indian probationers shall go to Aldershot for a course of drill after the completion of the instruction in London. While in London the lieutenants-on-probation for both services now reside at the St. Ermin's Hotel, Westminster. The candidate's commission as lieutenant will bear the date on which the course of instruction commences, but his rank will not be gazetted until he has passed the final examination.

A lieutenant-on-probation who is granted sick leave before the completion of his course of instruction and final admission to the service will receive furlough pay at the rate of 10*s.* 6*d.* a day for the period of his sick leave.

Candidates will be required to conform to such rules of discipline as may from time to time be laid down.

At the conclusion of the course candidates will be required to pass an examination on the subjects taught during the course of instruction.

Officers appointed to the Indian Medical Service will be placed on one list, their position on it being determined by the combined results of the preliminary and final examinations. They will be liable for military employment in any part of India, but in view to future transfers to civil employment, they will be allowed a choice, according to their position on the list above referred to, of the following civil areas:—(1) Madras and Burma; (2) Bombay with Aden; (3) Upper Provinces—i.e., United Provinces, Punjab, and Central Provinces; and (4) Lower Provinces—i.e., Bengal, and Eastern Bengal and Assam. Officers transferred to civil employment, though ordinarily employed within the area to which they may have been assigned, will remain liable to employment elsewhere according to the exigencies of the service.

The prizes formerly open to competition in the old Army Medical School at Netley have been transferred to the Medical Staff College in London and at present they are re-distributed as follows (but the arrangements as regards all the prizes are to be re-made now that all the course is to be attended in London): The Herbert Prize, the Parkes Memorial Bronze Medal, and the de Chaumont prize are now set aside to be competed for by the lieutenants-on-probation of the Royal Army Medical Corps, while the Webb prize and the Pathology prize are competed for by the young officers of both services. The two Montefiore prizes are open to the competition of the lieutenants-on-probation of the Indian Medical Service, and the Martin Memorial Gold Medal is competed for by the lieutenants-on-probation for the same service after the course in Military Medicine. The Maclean prize was withdrawn on the abolition of the Army Medical School and foundation of the Medical Staff College. The Herbert Prize of £20 is awarded to the lieutenant-on-probation who has obtained the highest number of marks at the Staff College examination in London; the Parkes Memorial Bronze Medal to the one who gains the highest number of marks in the examination in hygiene; the de Chaumont prize of books to the one who takes second place in Hygiene; the Montefiore Medal and £21 are awarded for Military Surgery; the Montefiore Second Prize, a cheque to the lieutenant-on-probation who obtains the second highest number of marks in this branch; a prize of books is given for the highest number of marks gained in Pathology; and the Marshall Webb prize of £5 and a bronze medal is awarded for Hospital Administration.

At the close of the session those lieutenants-on-probation who have obtained one-third of the possible total of marks and have satisfied the authorities that they possess the necessary skill, knowledge, and character for permanent appointment are recommended for commissions as Lieutenants in the Indian Medical Service.[4]

Officers on appointment are, when possible, provided with passage to India by troop transport; when such accommodation is not available passage at the public expense is provided by steamer, or a passage allowance granted if preferred. A charge for messing during the voyage is made at the rate of 2*s.* a day. This payment does not include the cost of liquors, which are charged for as extras. Any officer who may neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of terminating his course of instruction, or within 14 days of the termination of his hospital appointment if the Secretary of State has permitted him to hold one will be considered as having forfeited his commission unless special circumstances shall justify a departure from this regulation. A lieutenant may be promoted to the rank of Captain on completing three years' full-pay service from the date of first commission, but after completing 18 months' service and before promotion to the rank of Captain he will be required to pass an examination in military law and military medical organisation, the result of which may affect his promotion. With reference to the extract from the *Gazette of India*, Medical Department, No. 1047, dated Oct. 24th, 1903, paragraph 4, it is notified that the Government of India has decided that the scope of the examination which lieutenants of the Indian Medical Service will be required to pass after completion of 18 months' service will be as follows: Subject (*h*) Text-books, the relevant portions of the Army Regulations of India, vols. ii. and vi., and the Field Service Departmental Code (Medical). Subhead (*a*) (2): The duties of the subordinate *personnel* of native military hospitals and the preparation of returns and requisitions connected therewith. Subhead (3): The duties of executive medical officers of the Indian Medical Service. Subject (*d*), subhead (2): Indian military law and Indian articles of war as laid down for officers of the Supply and Transport Corps in G.O.C.C. 897 of 1902. One paper will be set in each of subheads (2) and (3) of subject (*h*). The time allowed for each paper will be three hours. The examinations will take place at district headquarters twice annually, on March 1st and Oct. 1st, simultaneously with those for other officers, commencing on Oct. 1st, 1904. The standard required will be for a pass 5 in (*h*) and 5 in law: for special certificate 8 in (*h*) and 8 in law. An officer may present himself for examination in the above subjects either separately or conjointly. The above rules apply only to officers appointed to the Indian Medical Service on or after Jan. 31st, 1900. The names of candidates for examination will be submitted by general officers commanding districts to the Director of Military Education in India so as to reach that officer by Sept. 1st and Feb. 1st annually. Captains are promoted to the rank of Major after 12 years' full-pay service, but this promotion is accelerated by six months in the case of an officer who produces satisfactory evidence of progress in any branch of knowledge which is likely to increase his efficiency (*London Gazette*, June 28th, 1905). A Major is promoted to Lieutenant-Colonel on completion of of eight years' full-pay service in the rank of Major. All promotions to higher grades are given by selection for ability and merit. In case of distinguished service in the field a medical officer may receive substantive or brevet rank. The ages for compulsory retirement are the same as those for the Royal Army Medical Corps. Officers of the Indian Medical Service below the rank of Colonel may be granted: 1. Privilege leave under such regulations as may from time to time be in force. 2. Leave out of India for no longer period than one year, capable of extension to two years' absence from duty, on the following pay for officers in military employment (officers in civil employment are entitled to higher rates):—After arrival in India, on first appointment, £250 a year; after the commencement of the tenth year's service for pension, £300 a year; after the commencement of the fifteenth year's service for pension, £450 a year; after the commencement of the twentieth year's service for pension, £600 a year; and after the commencement of the twenty-fifth year's service for pension, £700 a year. 3. Leave in India, but for the period of one year only, on full military pay and half the staff salary of appointment. No extension of leave involving absence from duty for more than two years, whether taken in or out of India, can be granted except on specially urgent grounds and without pay. An officer unable on account of the state of his health to return to duty within the maximum period of two years' absence, unless he is specially granted an extension of leave without pay, is placed on temporary half-pay or the retired list, as the circumstances of the case may require. An officer is also liable to be placed on half-pay or the retired list should his health require an undue amount of leave, whether in or out of India. Leave may be granted at any time, but solely at the discretion of the civil or military authorities in India under whom an officer may be serving. Officers of the Administrative grades may be granted one period of leave not exceeding eight months during their tenure of appointment. Extra furlough may be granted to officers desirous of pursuing special courses of study at the rate of one month's furlough for each year's service up to 12 months in all. During such leave the ordinary furlough pay will be given with lodging allowances of 4*s.*, 6*s.* and 8*s.*

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[4] A lieutenant who, before the expiry of one month from the date of passing his final examination, furnishes proof of his election to a resident appointment at a recognised civil hospital, may be seconded for a period not exceeding one year from the date on which he takes up such appointment, provided that he joins it within three months of passing his final examination and that he holds himself in readiness to sail for India within 14 days of the termination of the appointment. While seconded he will receive no pay from Indian funds, but his service towards promotion, increase of pay, and pension will reckon from the date on which the course of instruction for lieutenants-on-probation commences. Before the commission of a lieutenant-on-probation is confirmed he must be registered under the Medical Acts in force at the time of his appointment.

a day for Lieutenants, Captains, and field officers respectively. An officer on leave is required to join at once on being recalled to duty unless certified by a medical board as unfit to do so.

Pay and Allowances.

The rate of pay drawn by Lieutenants of the Indian Medical Service previous to arrival in India is 14s. a day, but a Lieutenant (1) who has been permitted by the Secretary of State to hold a hospital appointment will receive no pay while holding it; (2) who is detained by illness in this country will be paid at the rate of £250 a year from the date on which he would otherwise have embarked until the date of embarkation, and at the rate of 14s. a day during the voyage to India.

Pay at the above rate is issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate is also made prior to embarkation, which is adjusted in India.

The following are the monthly rates of Indian pay drawn by officers of the Indian Medical Service from the date of their arrival in India:—

Rank.	Unemployed pay.	Grade pay.	Staff pay.	In officiating medical charge of a regiment.	In permanent medical charge of a regiment.
	Rs.	Rs.	Rs.	Rs.	Rs.
Lieutenant	420	350	150	425	500
Captain	475	400	150	475	550
" after 5 years' service ...	475	450	150	525	600
" after 7 years' service ...	—	500	150	575	650
" after 10 years' service ...	—	550	150	625	700
Major	—	650	150	725	800
" after 15 years' service ...	—	750	150	825	900
Lieutenant-Colonel	—	900	350	1075	1250
" " after 25 years' service ...	—	900	400	1100	1300
" " specially selected for increased pay	—	1000	400	1200	1400

NOTES.—(a) Unemployed pay is drawn by officers of less than seven years' service who are not holding officiating or substantive charge of native regiments. Officers of more than seven years' service draw grade pay alone when unemployed. Staff pay is the pay of a command and is drawn in addition to grade pay.

(b) Horse allowance is granted to officers in substantive charge of cavalry regiments at the rate of Rs. 90 a month to Lieutenant-Colonels and Majors, and Rs. 60 a month to captains and lieutenants.

Note to paras. 16 to 20.—Under present arrangements, officers of the Indian Medical Service who are not statutory natives of India receive exchange compensation allowance to compensate them for the fall of the value of the rupee. The allowance consists of an addition to their salaries (subject to certain limitations) equal to half the difference between their salaries converted at (1) 1s. 6d. the rupee, and (2) the average market rate for each quarter.

Officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive at present the following consolidated salaries:—

		Rs. per mensem.
Surgeon-General		2200 to 3000
Colonel	from ...	1800
	to	2500

Specialist pay at the rate of Rs. 60 a month is granted to officers below the rank of Lieutenant-Colonel who may be appointed to certain posts.

The salaries of other substantive medical appointments in the Civil and Military Departments are consolidated and vary from Rs. 2000 to Rs. 450 per mensem. The pay of the majority of civil appointments has been increased, the increases in this case also being analogous to the recent increases in the pay of rank. The changes that will affect the largest number of officers are as follows: (a) The pay of civil and agency surgeons, first and second class, is fixed at Rs.50 a month more, and Rs.50 a month less, respectively, than the pay drawn by officers of the same rank in charge of native regiments. (b) Officers in charge of first- and second-class central jails will receive Rs.100 and Rs.50 respectively more than is drawn by officers of the same rank in charge of native regiments. The following new rates may also be mentioned: (a) Inspector-General of Civil Hospitals, Bengal, Rs.2500; (b) Inspector-General of Civil Hospitals, Punjab and Burma, Rs.2250; and (c) Sanitary Commissioners, Rs.1500–60–1800.

Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem.

Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Except in the administrative grades and in certain special appointments officers are not debarred from taking private practice as long as it does not interfere with their proper duties.

Tenure of Office in Administrative Grades.

The tenure of office of Surgeon-Generals and Colonels is limited to five years.

Colonels, if not disqualified by age, are eligible either for employment for a second tour of duty in the same grade or for employment in the higher grade of Surgeon-General by promotion thereto.

Absence on leave in excess of eight months during a five years' tour of duty involves forfeiture of appointment.

Surgeon-Generals and Colonels, on vacating office at the expiration of the five years' tour of duty, are permitted to draw *in India* an unemployed salary of Rs.1350 per mensem in the former, and Rs. 1000 in the latter case, for a period of six months from the date of their vacating office, after which they are placed while unemployed on the following scale of pay:—

—	Surgeon-General. Per diem.	Colonel. Per diem.
	£ s. d.	£ s. d.
After 30 years' service on full pay	2 5 0	1 14 0
" 25 " " "	2 5 0	1 10 0
" 20 " " " or on promotion, should this period of service not be completed...	2 0 0	1 8 0

A Surgeon-General or Colonel who has completed his term of service and has reverted to British pay may reside in Europe, at the same time qualifying for higher pension.

Retiring Pensions and Half-pay.

Officers of the Indian Medical Service will be allowed to retire on the following scale of pension on completion of the required periods of service:—

After 30 years' service for pension...	£700 per annum + £350 after three years' active employment in India as a Surgeon-General, or + £250 per annum after five years' active employment as a Colonel or £125 after three years as a Colonel. Eight months' absence on leave is allowed to count towards actual service in those grades.
" 25 " " "	£500 per annum.
" 20 " " "	£400 "
" 17 " " "	£300 "

Service for pension reckons from date of first commission and includes all leave taken under the leave rules.

Time (not exceeding one year) passed on temporary half pay reckons as service for promotion and pension, in the case of an officer placed on half pay on account of ill-health contracted in the performance of military duty.

Officers of the Indian Medical Service are liable after retirement on pension before completing 30 years' service to recall to military duty in case of any great emergency arising up to 55 years of age.

All officers of the rank of Lieutenant-Colonel and Major are placed on the retired list at the age of 55, and all Surgeons-General and Colonels at the age of 60, but the Director-General is allowed to serve until he has attained the age of 62 years. If a Lieutenant-Colonel has been especially selected for increased pay and he attains the age of 55 years before he becomes entitled to the pension of 30 years' service he may be retained until the completion of such service, and in any special case, where it would appear to be for the good of the Service that an officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

Officers placed on temporary or permanent half-pay are granted half-pay at the following rates.

—	Rates of Half-pay.*	
	Per diem.	Per annum.
	s. d.	£ s. d.
Under 5 years' service	6 0	109 10 0
After 5 "	8 0	146 0 0
" 10 "	10 0	182 10 0
" 15 "	13 6	246 7 6

* Officers cannot retire *in India* on half-pay (No. 45, Feb. 28th, 1865).

An officer of less than three years' service, although he may be transferred to the half-pay list under the general conditions of transfer, will not be granted any half-pay unless his unfitness has been caused by service.

Invalid Pensions

An officer who has become incapacitated for further service in India on account of unfitness caused by duty may, after he has been two years on temporary half-pay, be granted an Invalid Pension on the following scale:—

	Per annum.
After 16 years' pension service	£272
" 15 " " "	252
" 14 " " "	232
" 13 " " "	212
" 12 " " "	192

Wound Pensions.

Officers are entitled to the same allowances on account of wounds received in action and injuries sustained through the performance of military duty as are granted to combatant officers of His Majesty's Indian Military Forces holding the corresponding military rank.

Family Pensions.

The claims to pension of widows and families of officers are treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in force at the time being.

The widows and families of officers are also entitled to pensions under the Indian Service Family Pension Regulations, for the benefits of which all officers must, as a condition of their appointment, subscribe from the date of their arrival in India.

Honours and Rewards.

Officers of the Indian Medical Service are eligible for the military distinction of the Order of the Bath and for other Orders, British and Indian, and for good service pensions. Six of the most meritorious officers are named Honorary Physicians and six are named Honorary Surgeons to His Majesty. On appointment as Honorary Physician or Surgeon an officer below the rank of Colonel is promoted to that rank, remaining supernumerary until absorbed. A retired officer appointed Honorary Physician or Surgeon to the King is granted the honorary rank of Colonel, if on retirement he had not attained to that rank.

NOTE.—The following is a list of recognised Civil Hospitals.—England and Wales.—London: St. Bartholomew's Hospital, Charing Cross Hospital, Guy's Hospital, King's College Hospital, London Hospital, Middlesex Hospital, St. George's Hospital, St. Mary's Hospital, St. Thomas's Hospital, University College Hospital, and Westminster Hospital. Birmingham: General Hospital and Queen's Hospital. Bristol: Royal Infirmary and General Hospital. Cambridge: Addenbrooke's Hospital. Cardiff: Cardiff Infirmary. Leeds: General Infirmary. Liverpool: Royal Infirmary and Southern Infirmary. Manchester: Royal Infirmary. Newcastle-on-Tyne: Royal Infirmary. Oxford: Radcliffe Infirmary. Sheffield: Royal Infirmary and Royal Hospital. Scotland.—Aberdeen: Royal Infirmary. Dundee: Royal Infirmary. Edinburgh: Royal Infirmary. Glasgow: Royal Infirmary and Western Infirmary. Ireland.—Belfast: Royal Victoria Hospital. Cork: North Infirmary and South Infirmary. Dublin: the Adelaide Hospital, the City of Dublin Hospital, the Jervis Street Hospital, the Mater Misericordiæ Hospital, the Meath Hospital, Mercer's Hospital, the Richmond, Whitworth, and Hardwicke Hospital, St. Vincent's Hospital, Sir Patrick Dun's Hospital, and Dr. Steeven's Hospital. Galway: The County Hospital and the Union Hospital.

The Royal Army Medical Corps is at the present time, we believe, a contented service, though the Director-General A.M.S. is excluded from the Army Council, before which he will, however, be summoned whenever his advice and specialist knowledge are required.

The blots on the present regulations for the Indian Medical Service are as follows:—

1. That no officer, however employed, can receive any staff allowance unless he has passed the lower standard examination in Hindustani.

2. That an officer who enters the service after his 25th birthday forfeits almost to a certainty his chance of ever reaching a higher pension than £500 per annum.

3. The order of the present Government of India that an officer of the Indian Medical Service must refer the question of the amount of his fees when above a certain low limit to the civil authority. The recent orders might necessitate the violation of professional secrecy.

4. The neglect of the rule that the office of principal medical officer to His Majesty's forces may be held by an officer of the Indian Medical Service.

We wish to draw the attention of the Secretary of State for India to the circumstance that the candidate's commission as a lieutenant in the Indian Medical Service bears the date on which the course of instruction commences in London, while the date of a commission of a lieutenant in the Royal Army Medical Corps is the day of passing the entrance examination. This is rather an important matter and is of consequence when officers meet in India. The date of commission for the Indian officers should be regulated by the same rule as is applicable to officers of the sister service.

SPECIALIST PAY FOR OFFICERS OF THE ROYAL ARMY MEDICAL CORPS AND INDIAN MEDICAL SERVICE IN INDIA.

On July 5th, 1905, the Government of India sanctioned the provisional adoption of the following rules for the granting of specialist's pay to officers of the Royal Army Medical Corps and the Indian Medical Service:—

1. Specialist pay is an allowance to officers below the rank of Lieutenant-Colonel for special sanitary or medical work done for the State which is not in the power of the ordinary medical officer to perform with the same efficiency as the specialist. It will not be a personal allowance but will be granted only to the incumbents of certain specified appointments.

2. Specialist pay will not be given to officers of the Indian Medical Service in civil employ.

3. The services of specialists are absolutely at the disposal of the Government in any way they may direct without further claim for remuneration.

4. Except in connexion with dental appointments, the duties of specialist appointments must be carried out in addition to ordinary hospital duties.

5. Officers of the Royal Army Medical Corps in India will be eligible for appointment as specialists under the qualifications laid down by the Army Council for the Royal Army Medical Corps.

6. The eligibility of an officer of the Indian Medical Service for specialist pay will be decided by the Director-General of the Indian Medical Service, whose decision will be based either on certificates of a recognised institution, or by the examination of the candidate. An officer may qualify as a specialist at any period of his service; the allowance will be admissible to any officer who is in a position actually to perform the duties for which he is given the appointment.

7. There shall be 105 appointments in India for which specialist pay at Rs. 60 a month shall be granted; of these appointments 55 will belong to the Royal Army Medical Corps and 50 to the Indian Medical Service, military branch. The selection for appointments will be made under the orders of His Excellency the Commander-in-Chief.

It does not appear probable to us that the above rules will attract many men to the rank of the so-called specialist or that the Government can regard with much esteem a status for which it can frame such regulations.

PUBLIC HEALTH.

INSTRUCTION FOR DIPLOMAS IN STATE MEDICINE.

ENGLAND.

THE following resolutions, designed with a view of ensuring "the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health," were adopted by the General Medical Council from 1902 to 1905. The regulations require that—"(1) A period of not less than twelve months shall elapse between the attainment of a registrable qualification in Medicine, Surgery, and Midwifery and the examination for a diploma in Sanitary Science, Public Health or State Medicine; (2) every candidate shall produce evidence of having attended, after obtaining a registrable qualification, during a period of six months, practical instruction in a laboratory, British or foreign, approved of by the body granting the diploma and in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught; (3) every candidate shall produce evidence that, after having obtained a registrable qualification, he has for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) practically studied the duties, routine and special, of Public Health administration either under a whole-time medical officer of health or a medical officer of health who is also a teacher in public health in a recognised school, or in England and Wales under the medical officer of health of a county or of a single sanitary district of 50,000, or in one or more districts of 30,000 in Scotland or Ireland, or under a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, or command recognised by the General Medical Council, provided that the six months may be reduced to three if a candidate produces evidence that after obtaining a registrable qualification he has for three months attended a course of recognised instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on Public Health administration; (4) every candidate shall produce evidence that after having obtained a registrable qualification he has attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (5) the examination shall have been conducted by examiners specially qualified, and shall comprise laboratory work as well as written and oral examination; (6) the rules as to study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890." It was enacted by Section 18 (2) of the Local Government Act [England and Wales], 1888, that after Jan. 1st, 1892, no such appointment (that of medical officer of health) may be made in any county, or in any district or combination of districts with a population of 50,000 or upwards, unless the officer—having, of course, qualifications in Medicine, Surgery, and Midwifery—is registered as the holder of a diploma in Sanitary Science, Public Health, or State Medicine under Section 21 of the Medical Act, 1886, or has during any three consecutive years preceding 1892 been medical officer of a district or combination of districts with a population of 20,000 at least, or has for three years previously to August 13th, 1888, been a medical officer or inspector of the Local Government Board. With the sanction of the Local Government Board the same person may be appointed medical officer for two or more districts.

The regulations in question as to study may be procured at the office of the General Medical Council in London.

London University.—Sanitary Science is included under the head of State Medicine in the M.D. degree, and a certificate has to be produced showing that a course of practical instruction has been attended for the prescribed period, and that the course has included such chemical, microscopical, and meteorological work and exercises as more especially relate to sanitation. The attendance includes six months' practical instruction in a laboratory and six months' instruction in public health administration under the supervision of a medical officer of health, and three months' attendance on the practice of a hospital for infectious diseases.

Cambridge University.—Two examinations in so much of State Medicine as is comprised in the functions of medical officers of health will be held during the year 1906–7 in Cambridge. Each examination will consist of two parts. Part I. will begin on the first Wednesday in April and October respectively; Part II. will begin on the Monday following in April and October respectively; and each part will end on the following Thursday. Any person whose name is on the Medical Register is admissible as a candidate for this examination provided (1) a period of not less than twelve months shall have elapsed between the attainment of registrable qualification and the time when he presents himself for either part of the examination; (2) he produce evidence of having, after obtaining a registrable qualification, attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (3) he produce evidence of having, after obtaining a registrable qualification, attended during a period of six months on one or more courses, approved by the Syndicate, of practical laboratory instruction in Chemistry, Bacteriology, and the Pathology of those diseases of animals that are transmissible to man; (4) he produce evidence of having, after obtaining a registrable qualification, for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) been associated day by day in the duty, routine and special, of public health administration under the supervision of: (*a*) in England and Wales either the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 or a medical officer of health devoting his whole time to public health work; or (*b*) in Scotland or Ireland the medical officer of health of a county or of one or more sanitary districts having a population of not less than 30,000; or (*c*) a medical officer of health who is a teacher in the department of public health of a recognised medical school; or (*d*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps or district; or (*e*) in the British dominions outside the United Kingdom a medical officer of health of a sanitary district having a population of not less than 30,000 who himself holds a registrable diploma in public health. A certificate of an assistant officer of health of a county or a large sanitary district may be accepted, provided the medical officer of health of a county or district consents to the assistant officer giving such instruction. Any candidate who shall produce evidence that he has himself held an appointment as medical officer of health under conditions not requiring the possession of a special sanitary diploma shall be exempt from this regulation. A candidate who produces evidence that he has himself held, for a period of not less than three years, an appointment as medical officer of health of a sanitary district within the British dominions and having a population of not less than 15,000 shall be exempt from the provisions of paragraph (4). The provisions as to previous study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890.

The first part of the examination will comprise the following subjects. The elements of chemistry and physics: methods of chemical analysis and in particular the analysis of air and water. The laws of heat and the elements of pneumatics, hydrostatics, and hydraulics in their application to warming, ventilation, water-supply, and drainage. The geological and other conditions determining the healthiness of sites for dwellings. Sources, storage, and purification of water-supply. The elements of meteorology in relation to health. Principles of building construction in their application to dwellings, hospitals, and schools. The disposal of sewage and refuse and the general principles of sanitary engineering. Disinfectants, their chemistry and use. The chemical and microscopical examination of foods and the detection of the commoner forms of contamination. The methods of bacteriological investigation and analysis. The bacteriology of air, water, food, and soil. The general pathology of infection and of the diseases of animals that are transmissible to man. The second part of the examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise the following subjects. Laws and Statutes relating to Public Health.[1] The model by-laws of the Local Government Board. Sanitation of dwellings, schools, factories, and workshops, and of villages and towns. Inspection of slaughter-houses, cowsheds, &c. Inspection of meat and other articles of food. General epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographical distribution, and prevention of the epidemic, endemic, and other infective diseases both of temperate and of tropical climates. The methods applicable to the medical investigation of epidemics. Effects on health of overcrowding, vitiated air, impure water, polluted soils, and bad or insufficient food. Unwholesome trades and occupations and the diseases to which they give rise. Nuisances injurious or dangerous to health. The effects on health of season and climate. The principles and methods of vital statistics in relation to public health. (N.B.—The foregoing schedule is not to be understood as limiting the scope of the examination, which will include every branch of sanitary science. No candidate will be approved by the examiners who does not show a high proficiency in all the branches of study, scientific and practical, which bear upon the duties of medical officers of health.) The examinations in both parts will be oral and practical, as well as in writing. One day at least will be devoted to practical laboratory work and one day to oral and practical examination in, and reporting on, subjects connected with outdoor sanitary work. Candidates may present themselves for either part separately or for both together at their option; but the result of the examination in the case of any candidate will not be published until he has passed to the satisfaction of the examiners in both parts. Every candidate will be required to pay a fee of £6 6*s.* before admission or re-admission to *either part* of the examination, but candidates who have presented themselves before the year 1896 will be re-admitted to either part on payment of a fee of £5 5*s.* Every candidate who has passed both parts of the examination to the satisfaction of the examiners will receive a diploma testifying to his competent knowledge of what is required for the duties of a medical officer of health. All applications for information respecting this examination and the courses of study in the University should be addressed to Dr. Anningson, Walt-ham-sal, Barton-road, Cambridge, Secretary to the Syndicate. Candidates who desire to present themselves for the examination must send in their applications on forms supplied for the purpose and transmit them with the fees to Mr. J. W. Clark, Registrary, University of Cambridge, for the April examination on or before March 17th and for the October examination on or before Sept. 15th. The prescribed certificate must be sent to the Registrary so as to reach him not later than 10 A.M. on March 30th and Sept. 28th respectively. Cheques should be crossed "Barclay and Co., Ltd." The fee for either part of the examination cannot be returned to any candidate who fails to present himself; but he will be entitled, without an additional fee, to be a candidate on one subsequent occasion. Candidates must before admission to either part of the examination produce evidence of having satisfied provisions (1), (2), and (3), and before admission to Part II. having satisfied provision (4), above mentioned. The following is a list of colleges and schools of medicine at which the courses of laboratory instruction have, for the purposes of this examination, been already approved by the State Medicine Syndicate: The University Laboratories, Cambridge; London Hospital Medical College; St. Bartholomew's Hospital Medical College; King's College, London; University College, London; the Royal Army Medical College, London; the Victoria University of Manchester; the University of Durham Medical School, Newcastle-on-Tyne; University of Birmingham; University of Liverpool; St. Mary's Hospital Medical College; Charing Cross Hospital College; Westminster Hospital Medical School; University College, Bristol; the University of Leeds; Guy's Hospital Medical School; St. Mungo's College, Glasgow; Edinburgh University; Middlesex Hospital Medical School; Royal Southern Hospital, Liverpool; Royal Colleges, Edinburgh; Surgeons' Hall, Edinburgh; Trinity College, Dublin; Queen's College, Belfast; St. Thomas's Hospital Medical School; University College, Cardiff; University College, Sheffield; Medical School, Catholic University, Dublin; St. George's Hospital Medical School; University of Glasgow; University of Aberdeen; and Anderson's College, Glasgow.

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[1] All candidates will be examined in the provisions of the English Statutes relating to public health, but any candidate will be given an opportunity of showing a special knowledge of other sanitary laws in operation within the British Empire, provided that, *when applying for admission to the examination, he give notice* of his desire and indicate the special law he proposes to offer.

University of Oxford.—An examination, open to all registered medical practitioners, conducted partly in writing, partly *vivâ voce*, and in each subject partly practical, is held in Michaelmas Term in the following subjects:—General Hygiene, General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The examination is in two parts, which may be taken together or separately; but Part I. must be passed either before or at the same examination as Part II. The fee for admission to the examination is £5 for each part. The names of candidates must be sent to the Secretary to the Boards of Faculties, to whom applications for any further information should be made.

University of Durham.—Sanitary Science is the special object of the degrees in Hygiene. Candidates for the degree of Bachelor in Hygiene (B.Hy.) must be at least twenty-two years of age, registered, and a graduate in Medicine of a recognised university, and at least twelve months shall have elapsed after the date when the candidates obtained their first registrable qualification in Medicine, Surgery, and Midwifery before presenting themselves for examination. They shall spend six months at Newcastle-upon-Tyne studying Comparative Pathology, Practical Bacteriology, Outdoor Sanitary Work, Infections Diseases, Sanitary Chemistry, and Physics. They have to pass an examination in Sanitary Chemistry, Physics, Comparative Pathology, Sanitary Legislation, Vital Statistics, Nosology, Climatology, Meteorology, Distribution of Health and Disease, Sanitary Medicine and Practical Hygiene. The fee for the examination for the degree of B.Hy. is 10 guineas and for the degree £6 6*s*. The examination is divided into two parts and candidates may present themselves for either part or both together at their option. Candidates for the degree of Doctor in Hygiene (D.Hy.) must have acquired the degree of Bachelor in Hygiene, must for two years subsequently have been engaged in practice as a medical officer of health, and must write an essay upon some practical hygienic subject. The fee for the examination for the degree of D.Hy. is £5 and for the degree £6 6*s*. The regulations for education and examination for the Diploma in Public Health (D.P.H.) are the same as those for the degree of Bachelor of Hygiene, except that the candidate is not required to be a graduate in Medicine of a recognised University, and the course of study need not be passed at Newcastle-upon-Tyne. The fee for the examination and Diploma in Public Health is 10 guineas.

Victoria University of Manchester.—An examination in Public Health is held twice yearly under the following regulations: The examination is in two parts and is written, oral, and practical. Candidates before entering for either part of the examination must have held for not less than twelve months a registrable qualification in Medicine, Surgery, and Midwifery, and must present satisfactory certificates of having attended courses of instruction in Public Health in the University, or in a college or medical school recognised for this purpose by the University; of having attended, after obtaining a registrable qualification, during at least six months, practical instruction in a laboratory approved by the University, the courses including Chemistry as applied to Public Health, Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man; of having, after obtaining a registrable qualification, attended for three months the clinical practice of a hospital for infectious diseases; of having, after obtaining a registrable qualification, practically studied the duties of outdoor sanitary work for not less than six months under the medical officer of health of a county or of a large urban district. Candidates may present themselves for Parts I. and II. separately or at the same time, provided that no candidate be admitted to Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination. The fee for each part is £5 5*s*. and must be paid on or before July 1st in each year. For any subsequent examination in the same part the fee will be £3 3*s*. Every candidate who has passed both parts of the examination to the satisfaction of the examiners, and who is legally registered, will receive a Diploma in Public Health. The examinations will begin about the middle of January and the middle of July in each year.

University of Birmingham.—The University grants a degree of B.Sc. in Public Health and also a Diploma in the same subject on the following conditions: Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University and they must, in addition, have attended a three months' course of Geology in the University. The following are the regulations for Diploma in Public Health (general conditions):—1. All candidates must be registered under the Medical Act. 2. The examinations will be held in the months of January and June and will consist of two parts. No candidate will be allowed to pass Part II. until he has passed Part I. 3. Candidates may enter for Parts I. and II. separately or at the same time. 4. The examination in each part will be written, oral, and practical. 5. Candidates intending to present themselves for either part of the examination must give notice in writing to the registrar of the University on the date prescribed in the calendar. 6. The fee for each part of the examination is £2. Admission fee to degree or diploma, £6. The conditions of admission to the examinations are identical with those recently approved by the General Medical Council.

Officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the staff College and pursued the further course of study approved by the General Medical Council in December, 1902, will be admitted to the Examination for the Diploma in Public Health, whether they have previously been students of the Birmingham School or not.

University of Leeds.—The University grants a Diploma in Public Health and every facility is afforded for training in Sanitary Science and State Medicine. The curriculum for the various D.P.H. Examinations demands (1) a course of lectures on Public Health; (2) a course of instruction in Sanitary Chemistry; (3) a course of practical instruction in Bacteriology; (4) practical instruction in Infectious Diseases; and (5) practical work in Sanitation. Instruction in Bacteriology is given in the second term and in Chemistry in the third term. The other courses may be taken out at any time. Fees.—Chemistry, £5 5*s*.; Bacteriology, £5 5*s*.; Practical Sanitation, £10 10*s*.; Infectious Diseases, £5 5*s*.

University of Liverpool.—The University grants a Diploma in Public Health and every facility is afforded for training in Sanitary Science and State Medicine. The curriculum for the various D.P.H. Examinations demands (1) a six months' course of practical instruction in Sanitary Science, (2) a six months' course of laboratory instruction in Chemistry and Bacteriology, and (3) practical instruction in Infectious Diseases. Fees.—Chemistry, £5 5*s*.; Bacteriology, £5 5*s*.; Practical Sanitation, £25; Tutorial Classes, £7 7*s*.; Infectious Diseases, £3 3*s*. The courses may be taken out at any time and students are allowed to work daily in the laboratories.

Royal College of Physicians of London and the Royal College of Surgeons of England.—The following are the regulations for obtaining the Diploma in Public Health: Section 1: Candidates must be registered under the Medical Act. The examination consists of two parts. The fee for each part is £6 6*s*. A candidate intending to present himself must give 14 days' written notice to the Secretary, at the Examination Hall, Victoria Embankment, W.C. A candidate registered under the Medical Act on or before Jan. 1st, 1890, will be admissible to Part I. of the examination on producing evidence of being at least 23 years of age, and to Part II. on producing evidence of being at least 24 years of age. A candidate registered under the Medical Act after Jan. 1st, 1890, will be admissible to examination in Part I. on producing evidence (1) of having been in possession of a registrable qualification in Medicine, Surgery, and Midwifery for at least 12 months; (2) of having attended, after obtaining such registrable qualification, practical instruction in a laboratory recognised by the Examining Board in England during a period of six months; and (3) of being at least 23 years of age. A candidate will be admitted to Part II. of the examination on producing evidence (1) of having been associated day by day in the duty, routine and special, of Public Health administration during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Par. 2 for Part I.) under the supervision of a medical officer of health who fulfils certain conditions which can be ascertained on application to the secretary [2]; (2) of having attended the clinical practice of a hospital for infectious diseases recognised by the Examining Board in England, after obtaining his registrable qualification in Medicine, Surgery, and Midwifery; and (3) of being at least 24 years of age.

SCOTLAND.

Edinburgh University.—Two degrees in Science in the Department of Public Health are conferred by the University of Edinburgh, viz., Bachelor of Science in Public Health and Doctor of Science in Public Health. Candidates for the degree of B.Sc. in Public Health must be graduates in Medicine of a University of the United Kingdom, or of some other University recognised for the purpose, and must pass two examinations, for the first of which they must, after graduation in Medicine, have worked for at least 20 hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Edinburgh and the remainder either there or in a laboratory recognised by that University; they must also have attended courses of instruction in Physics and Geology in some Scottish University. Candidates are not admitted to the Second Examination sooner than six months after having passed the First Examination, nor sooner than 18 months after having taken their degree in Medicine, and they must have attended two separate courses in Public Health in some University of the United Kingdom or in such medical school or Indian, Colonial, or Foreign University as may be approved for the purpose by Edinburgh University, each course consisting of 40 lectures at least; one of which courses shall deal with medicine and the other with engineering, each in its relation to public health. They must also give evidence that, subsequent to graduation in medicine, (1) they have during three months, which must be separate and distinct from the period of laboratory instruction, been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the supervison of (*a*) a medical officer of health recognised for this purpose by the General Medical Council; (*b*) a sanitary staff officer of the Royal Army Medical Corps, having charge of an army corps, district, or command, recognised for this purpose by the General Medical Council; (2) that they have attended during three months the practice of a hospital for infectious disease, at which opportunities are afforded for the study of methods of administration; and (3) that they have had three months' instruction in mensuration and drawing. The subjects of examination include Laboratory work, Physics, Geology, Medicine in its application to Public Health, Sanitation, Sanitary Law, and Vital Statistics. Graduates who have held the degree of B.Sc. in Public Health from the University of Edinburgh for a term of five years may offer themselves for the degree of D.Sc. in Public Health in that University. They must then present a Thesis and pass an examination in Public Health. The fees are £3 3*s*. for the First and £3 3*s*. for the Second B.Sc. Examinations, and £10 10*s*. for the degree of D.Sc.

University of Aberdeen.—The Diploma in Public Health (D.P.H.) is conferred only on graduates in Medicine of a University in the United Kingdom; and a period of not less than 12 months must elapse between medical graduation and entrance to the examination for the diploma. Every candidate must produce evidence of having attended, after graduation in Medicine, during a period of six months, practical instruction in Hygiene and Bacteriology in laboratories approved of by the University, together with having during six months (whereof three months must be distinct from the period of laboratory instruction) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the medical officer of health of a county or large urban district. He must have regularly attended for three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration. He must also have obtained practical instruction in the drawing and interpretation of plans. Every candidate who is not a graduate in Medicine of this University must have attended a course of instruction in the University in one or more of the subjects embraced in the examination for the diploma. The diploma is conferred after an examination in Public Health held in March and July of each year. Candidates must send in their names, with the necessary fee, to the Secretary of the Medical Faculty a fortnight before the examination. The fee is £5 5*s*. The examination is conducted by specially qualified examiners appointed by the University. Candidates may enter for the whole examination at one period or they may enter for Part I. at one period and for Part II. at another and subsequent period.

The Royal College of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow.—All candidates for the Diploma in Public Health must have been qualified for at least one year. Those qualified before 1890 do not require to produce evidence of attendance on any special courses. All other candidates must have attended, after qualifying, six months' practical instruction in a recognised laboratory or laboratories, and must have studied for six months the duties of outdoor sanitary work under the medical officer of health of a county or large urban district or a medical officer of health who is also a teacher of Sanitary Science in a Medical School, or a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps District or command. There are two examinations, and candidates may enter for both at one period or for either separately. The First Examination includes (*a*) Laboratory Work (Chemistry and Bacteriology), (*b*) Physics, and (*c*) Meteorology; and the Second Examination embraces (*a*) Report on Premises visited, (*b*) Examination at Fever Hospital, (*c*) Examination at Public Abattoir, (*d*) Written and Oral Examinations on Epidemiology and Endemiology, (*e*) Vital Statistics and Sanitary Law, and (*f*) Practical Sanitation. The fee is 12 guineas for both examinations, or 6 guineas for either of them. A fee of 3 guineas is payable by rejected candidates for either examination. The examination is held twice yearly, in May and October. The published regulations provide detailed synopses of the subjects of examination. The Registrar for Edinburgh is Mr. James Robertson, solicitor, 54, George-square, and for Glasgow Mr. Alexander Duncan, LL.D., 242, St. Vincent-street.

IRELAND.

Royal University of Ireland.—This University grants a Diploma in Public Health. It is conferred only on graduates in Medicine of the University. Candidates are not admitted to this examination until the lapse of 12 months from the time of obtaining the M.B., B.Ch., B.A.O. degrees; they must give notice in writing to the Secretaries of their intention to present themselves and must pay the fee, £2, at least one month previously to the examination. Candidates are required to produce a certificate of having, after obtaining the degrees of M.B., B.Ch., B.A.O., attended six months' practical instruction in a laboratory approved by the University, and also of having for six months practically studied the duties of outdoor sanitary work under the medical officer of health of a county or large urban district. Candidates at this examination must answer in the following subjects: (1) Physics, (2) Chemistry, (3) Meteorology, (4) Sanitary Engineering and Architecture, (5) Bacteriology, and (6) Hygiene, Sanitary Law, and Vital Statistics.

University of Dublin.—The Diploma in Public Health is conferred, after examination, on the following conditions. The candidate must be a Doctor in Medicine or a graduate in Medicine, Surgery, and Midwifery of Dublin, Oxford, or Cambridge. The name of the candidate must have been on the Medical Register at least 12 months before the examination. The candidate must have completed (unless registered as a practitioner on or before Jan. 1st, 1890), subsequently to registration, six months' practical instruction in a chemical and bacteriological laboratory or laboratories approved by the University, must have studied practically outdoor sanitary work for six months under an approved officer of health (at least three months of this period being distinct from the time spent in laboratory work), and must have spent three months in a fever hospital where opportunities are afforded for the study of methods of administration. The subjects of examination will be:—Part I.: Chemistry, Bacteriology, Hygiene, Pathology (including methods of post-mortem examinations), Physics, and Meteorology. Part II.: Hygiene and Epidemiology, Vital Statistics, Public Health Acts, and Sanitary Engineering and Reports.

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[2] Provided that the period of six months may be reduced to a period of three months (which shall be distinct and separate from the period of laboratory instruction required under Regulation 2) in the case of any candidate who produces evidence that after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on public health administration given by a teacher or teachers in the department of public health of a recognised medical school.

Royal College of Physicians and Royal College of Surgeons in Ireland.[1]—Stated examinations for the Diploma in Public Health are held in the months of February, May, and November. A special examination for the diploma may, at the discretion of the Committee of Management (except during the months of August and September), be obtained on payment of £10 10*s.*, in addition to the ordinary fees mentioned below, and on giving notice at least one fortnight before the date of the proposed examination. Every candidate for the Diploma in Public Health must be a registered medical practitioner. (Candidates registered or entitled to be registered prior to January, 1890, are exempt from the rules as to study.) He must subsequently to qualification (1) receive six months' laboratory instruction in Chemistry, Bacteriology, and the Diseases of Animals transmissible to man; and (2) during six months practically study outdoor sanitary work under a medical officer of health and shall as an additional requirement attend a hospital for infectious diseases. Candidates are examined on four days, commencing on the first Monday of February, May, and November. Each candidate must return his name to the secretary of the Committee of Management under the Conjoint Scheme two weeks before the examination, and lodge with him a testimonial of character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh. The fee for the examination is £10 10*s.* The examination for the diploma in State Medicine comprises the following subjects:—State Medicine and Hygiene, Chemistry, Meteorology and Climatology, Engineering, Vital Statistics, Law, and Bacteriology. For further particulars apply to the Secretary, Committee of Management; Office, Royal College of Physicians, Dublin.

DENTAL SURGERY.

ANYONE who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without the special licence; but it is of eminent advantage to take the L.D.S., otherwise few dental appointments at general or special hospitals or dispensaries are available, and, what is still more important, the manual dexterity and knowledge of mechanics requisite for the successful practice of dentistry can only be gained by long and careful training at the dental operating chair and in the dental laboratory; and, this having been attained, it is but little trouble to pass the special examinations. The subjects beyond those included in the general qualification are—Dental Anatomy and Physiology (Human and Comparative), one course; a separate course of Dental Histology, including the preparation of microscopical sections; Dental Surgery, one course; a separate course of Practical Dental Surgery; a course of not less than five lectures on the Surgery of the Mouth; Dental Mechanics, one course; a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns; Dental Metallurgy, one course; a course of Practical Dental Metallurgy; Practice of Dental Surgery at a recognised school, two years, and a certificate of having been engaged during a period of not less than two years in acquiring a knowledge of Dental Mechanics (this may be obtained by apprenticeship to a duly qualified dental practitioner or in the mechanical department of a recognised dental hospital). The Dental Schools in London are the Royal Dental Hospital of London, the National Dental Hospital and College, and Guy's Hospital Dental School. Most of the large provincial towns have now dental hospitals. A convenient arrangement by which the M.R.C.S., L.R.C.P., and L.D.S. can be taken is as follows:—The Preliminary Examination in General Education having been passed the student should commence his mechanical training at a dental school or with a qualified dentist and register as a dental and medical student. (This instruction, however, may be taken prior to the date of registration as a dental student.) During his mechanical training the student should receive instruction in Chemistry and Physics, Pharmacy and Elementary Biology, and pass in these subjects before entering the hospital. (The foregoing constitute the First Examination.) Having entered the hospital the student should attend the dental and general courses contemporaneously, and pass at the end of the second winter the Second Examination—namely, Anatomy and Physiology. At the completion of his second year of study the Dental Examination should be passed. The student should then devote his time to general studies and pass the Third Examination. When time permits it is advisable to attend the general hospital only until after the First and Second Examinations have been passed. At this point a break may be made to admit of the completion of the dental curriculum and the passing of the examinations for the L.D.S. diploma. The best course, however, is entirely to finish the curriculum for the M.R.C.S. and L.R.C.P. and then take the special Dental work. The regulations for the Dental Licence of the Royal Colleges of Ireland and Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow are very similar to those of the English College. The L.D.S. can also be obtained alone.

REGISTRATION OF DENTAL STUDENTS.

The registration of dental students is carried on at the Medical Council Office in London in the same manner as the existing registration of medical students, and subject to the same regulations as regards Preliminary Examinations. Students who commenced their professional education by apprenticeship to dentists entitled to be registered or by attendance upon professional lectures before July 22nd, 1878 (when dental education became compulsory), are not required to produce evidence of having passed a Preliminary Examination. Candidates for a diploma in Dental Surgery must produce certificates of having been engaged during four years in professional studies and of having received three years' instruction in mechanical dentistry from a registered practitioner. The three years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student, but no year of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration.

It is now necessary for anyone practising Dental Surgery in this country to be on the Register and no foreign qualifications are admitted.

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after Jan. 1st, 1897. Candidates are required to pass three examinations: the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination. I. Preliminary Science Examination.—Before admission to this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry, Physics, and Practical Chemistry. The examination consists of these subjects and is identical with Part I. of the First Examination of the Examining Board in England. II. The First Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of mechanical dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the superintendent of the mechanical department of a recognised dental hospital. 2. Of registration as a dental student by the General Medical Council. 3. Of having attended at a recognised Dental Hospital and School (*a*) a course of lectures on Dental Metallurgy; (*b*) a course of Practical Dental Metallurgy; (*c*) a course of Lectures on Dental Mechanics; and (*d*) a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns. Candidates may present themselves for the First Professional Examination on production of the required certificates. The Examination consists of Mechanical Dentisty and Dental Metallurgy, the examination in Dental Metallurgy being by written paper. III. The Second Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student.

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[1] No returns.

2. Of having attended at a recognised dental hospital and school (*a*) a course of Dental Anatomy and Physiology; (*b*) a separate course of Dental Histology, including the preparation of microscopical sections; (*c*) a course of Dental Surgery; (*d*) a separate course of Practical Dental Surgery; (*e*) a course of not less than five lectures on the Surgery of the Mouth, which lectures may be given at a dental hospital or at a recognised medical school; in the latter case they may form part of the course of lectures on Surgery; (*f*) a course of Dental Materia Medica; and (*g*) a course of Dental Bacteriology. 3. Of having attended at a recognised dental hospital or in the dental department of a recognised general hospital the practice of Dental Surgery during two years. 4. Of having attended at a recognised medical school (*a*) a course of lectures on Anatomy, (*b*) a course of lectures on Physiology, (*c*) a separate Practical Course of Physiology, (*d*) a course of lectures on Surgery, and (*e*) a course of lectures on Medicine. 5. Of having performed Dissections at a recognised medical school during not less than 12 months. 6. Of having attended at a recognised hospital the practice of Surgery and Clinical Lectures on Surgery during two winter sessions. 7. Of being 21 years of age. The certificates of professional study will be required to show that students have attended the courses of professional study to the satisfaction of their teachers. Candidates may present themselves for the Second Professional Examination after the completion of four years' professional study from the date of registration as a dental student and after the lapse of not less than six months from the date of passing the First Professional Examination. The Second Professional Examination consists of: Part I., General Anatomy and Physiology, General Surgery and Pathology; Part II., Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. The written examination in Part I. comprises General Anatomy and Physiology, General Pathology and Surgery, and in Part II., Dental Anatomy and Physiology, and Dental Pathology and Surgery. At the Practical Examination candidates may be examined (*a*) on the treatment of Dental Caries and may be required to prepare and fill cavities or to do any other operation in Dental Surgery (candidates must provide their own instruments); (*b*) on the Treatment of the various irregularities of Children's Teeth. There is also an Oral Examination. Candidates may take the two parts of the examination together or separately. Candidates must pass Part I. before proceeding to Part II. If they fail in Part I. they are not allowed to proceed with Part II. Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom, in India, or in a British colony. Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the Second Examination of the Examining Board in England or the corresponding Examination for any degree or qualification in medicine or surgery registrable under the Medical Act of 1886. Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and Universities above mentioned. The fee for the diploma is 20 guineas and is payable as follows:—Preliminary Science Examination, 3 guineas; First Professional Examination, 2 guineas; Second Professional Examination, 5 guineas; the balance to be paid on the completion of the Examinations. The Preliminary Science Examination is held in January, March, or April, July, and October in each year. The First and Second Professional Examinations are held in May and November in each year. Candidates must give 21 clear days' notice of their intention to present themselves for examination.

Royal College of Surgeons, Edinburgh.—For the Licence in Dental Surgery all candidates must pass a Preliminary Examination in General Knowledge and have their names inscribed in the *Register of Dental Students* of the General Medical Council. A copy of regulations giving a list of Preliminary Examinations recognised for obtaining this Licence, as well as of the subjects of the Professional Examinations, may be obtained from Mr. James Robertson, Clerk to the Royal College of Surgeons, at 54, George-square, Edinburgh. Students who commenced their professional education by apprenticeship or attendance on lectures before July 22nd, 1878, are exempt from the Preliminary Examinations. Candidates must produce certificates of having, subsequently to the date of registration, been engaged for four years in professional studies and of three years' instruction in Mechanical Dentistry from a registered dental practitioner, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates who have commenced their studies before Oct. 31st, 1898, must have attended the following curriculum: Anatomy, one course of six months; Practical Anatomy, twelve months; Chemistry, one course of six months; Practical Chemistry, one course of three months; Physiology, one course of six months; Materia Medica, one course of three months; Surgery, one course of six months; Medicine, one course of six months; and attendance on the practice of a recognised general hospital, with Clinical Instruction on Surgery and Medicine, twelve months. These courses must have been attended at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the diploma in Surgery. In addition to these courses candidates will be required to have attended in a recognised dental hospital, or with teachers recognised by the College, the following special courses of lectures and instruction: Dental Anatomy and Physiology (Human and Comparative) (not less than 24 lectures), Dental Surgery and Pathology (not less than 20 lectures), Dental Mechanics (not less than 12 lectures)—one course each; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Certificates of attendance on such of these courses of the new curriculum as may be respectively required will entitle candidates to appear either for the First Dental Examination or for the First and Second Examinations for the Triple Qualification, as they may select, and subject to the existing regulations for each qualification. Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma. *First Professional Examination*: The candidate must have attended the courses on Anatomy, Chemistry, and Physiology. The examination embraces Anatomy, Chemistry, and Physiology. The fee for those candidates who began study before Oct. 1st, 1896, is £4 4*s.* Second Examination: The candidate must have attended the remaining courses of the curriculum, must produce certificates showing that he is 21 years of age, and must pay a fee of £6 6*s.* The examination embraces Surgery, Medicine, Therapeutics, and the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, and Dental Mechanics with Dental Metallurgy. Unsuccessful candidates will be repaid £2 2*s.* in the First and £3 3*s.* in the Second Examinations. Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations will, before being admitted to the Second Dental Examination, be required to pay the total fee of £10 10*s.* payable for the dental diploma, of which £3 3*s.* will be returned in case of rejection. The fee payable by candidates who began study after Oct. 1st, 1896, shall be £15 15*s.*, £5 5*s.* of which are payable on entering for the First Examination and £10 10*s.* on entering for the Second Examination.

Faculty of Physicians and Surgeons of Glasgow.—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh. Special provision is made for candidates who intend to qualify both in Medicine and in Dentistry. Candidates can enter for the First Examination in two divisions, the first embracing Physics and Chemistry, and the Second Anatomy and Physiology. There is a practical Examination in Mechanical Dentistry and also an examination in Practical Dentistry conducted in a dental hospital.

Royal College of Surgeons in Ireland.—All information concerning the licence in Dental Surgery may be obtained from the Registrar of the College, who will receive the applications of candidates for permission to be examined. The bank receipt for fees, together with all certificates, &c., are to be lodged with him at least seven days prior to the day fixed for the commencement of the examination. The Primary Dental Examinations commence on the second Monday in the months of February, May, and November. The Final Dental Examinations commence on the Thursdays immediately following the Primary Dental Examinations. Candidates are required to pass three examinations—viz., Preliminary (in General Education), Primary Dental, and Final Dental. Preliminary Examination.—All examinations in general education recognised by the General Medical Council are accepted by the College. Preliminary Examinations are held conjointly by the Royal Colleges of Physicians and Surgeons on the third Wednesdays in March and September. Primary Dental Examination.—Fee £10 10*s.*; for re-examination, if rejected, £5 5*s.* Every candidate[1] is required, before admission to the Primary Dental Examination, to produce evidence—(1) of having passed a recognised preliminary examination and of having been registered as a medical or dental student by the General Medical Council; (2) of having, subsequently to registration as a dental or medical student, attended at a recognised medical school the following courses: Lectures on Practical Anatomy, including Dental Anatomy, six months; Demonstrations and Dissections, two courses of six months each; Lectures on Chemistry, six months; Lectures on Physiology, including Dental Physiology, six months; Practical Histology; and Practical Chemistry, including Metallurgy, three months; (3) of having attended Clinical Instruction at a recognised general hospital for one year. The subjects of this examination are: (1) Physics;[2] (2) Chemistry, including Metallurgy; (3) Anatomy; (4) Physiology and Histology; and (5) Surgery. Final Examination.—Candidates holding L.R.C.S.I. or students who have passed Primary Dental or Third Professional Examination of the College, £10 10*s.*; re-examination, £5 5*s.* Fees for Final Examination of all other candidates, £26 5*s.*; re-examination, £10 10*s.* Extra fee for Special Examination, £5 5*s.* Candidates must produce evidence of having passed the Primary Dental Examination of this College, or the Third Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognised by the College, and are required to produce certificates of having attended: (1) the following courses of lectures recognised by the College: Dental Surgery and Pathology (two courses), Dental Mechanics (two courses); (2) for two years the practice of a dental hospital recognised by the College or of the dental department of a general hospital so recognised; (3) of having been engaged during four years in professional studies; and (4) of having received three years' instruction in Mechanical Dentistry from a registered dentist. Candidates holding a diploma in Surgery shall be admissible to the Final Dental Examination on producing certificates of having attended: (1) one course of Lectures on Dental Surgery and Pathology; (2) one course of Lectures on Dental Mechanics; (3) for one year the practice of a dental hospital recognised by the College, or of the dental department of a general hospital so recognised, where such attendance has been subsequent to the date of diploma (this remission (3) has been made on the understanding that the surgeon devotes his whole time to dental work); and (4) of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist. The following are the subjects of examination: Dental Surgery, Theoretical (including Dental Pathology), Clinical, and Operative; Dental Mechanics, Theoretical, Clinical, and Practical (including the Metallurgy of the Workshop). Examinations for the Licence in Dentistry *sine curriculo*: The Council has power to admit to examination, *sine curriculo*, candidates whose names are on the Dental Register published under the direction of the General Medical Council, and who are unable to furnish the certificates required by the foregoing regulations, on presentation of a special schedule of application.

TEACHING INSTITUTIONS.

ENGLAND.

Royal Dental Hospital of London and School of Dental Surgery, Leicester-square.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 4 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the mechanical training recognised by the curriculum. The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery. The five house surgeoncies are held for six months each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the mechanical laboratory. Two scholarships of the value of £20—the Saunders and the Entrance. The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery, value £50, is awarded triennially. The Robert Woodhouse Prize of £10 is for Practical Dental Surgery. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses, at the end of the summer and winter sessions. A prize of the value of 5 guineas is given by Messrs. Ash and Sons for the best essay on some surgical subject connected with Dental Surgery. Consulting Physician: Sir Richard Douglas Powell, Bart. Consulting Dental Surgeons: Mr. T. Arnold Rogers, Mr. Morton Smale, and Mr. C. S. Tomes, F.R.S. Dental Surgeons: Mr. J. F. Colyer, Mr. C. F. Rilot, Mr. H. Lloyd Williams, Mr. W. H. Dolamore, Mr. G. Hern, and Mr. J. G. Turner. Assistant Dental Surgeons: Mr. N. G. Bennett, Mr. D. P. Gabell, Mr. A. Hopewell Smith, Mr. H. Austen, and Mr. R. McKay. Anæsthetists: Dr. Dudley Buxton, Dr. R. J. Probyn-Williams, and Mr. H. Hilliard. Demonstrators: Mr. E. F. Ackery, Mr. H. C. Jones, Mr. A. L. Whitehouse, Mr. H. W. Perkins, Mr. L. C. Ball, and Mr. J. G. Atkinson-Fairbank. Lecturers:—Dental Anatomy and Physiology (Human and Comparative): Mr. A. Hopewell Smith. Dental Surgery and Pathology: Mr. J. G. Turner. Mechanical Dentistry: Mr. W. J. May. Metallurgy in its application to Dental Purposes: Mr. P. Ellis Richards. Dental Bacteriology: Mr. Howard Mummery. Dental Materia Medica: Mr. H. A. Austen. During the sessions the surgeons of the day will give demonstrations at stated hours. The house surgeons attend daily while the hospital is open. Fee for two years' hospital practice required by the curriculum, including lectures, £53 3*s.* in one payment, or £55 13*s.* in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £60. Both hospitals can be attended simultaneously. The fee for the instruction in Mechanical Dentistry and the two years' hospital practice required by the curriculum is £150 if paid in one instalment, or 150 guineas if paid in three equal instalments. The fee for tuition in Mechanical Dentistry is 60 guineas per *annum*. The Dean attends at the hospital every Wednesday morning from 9 to 10.30, or he can be seen at other times by appointment. *Letters to be addressed*—The Dean, 32, Leicester-square, "to be forwarded."

National Dental Hospital and College.—Corner of Great Portland and Devonshire-streets, W.—Consulting Physician: Sir Victor Horsley. Consulting Dental Surgeon: Mr. Sidney Spokes. Visiting Physician: Dr. James Maughan. Visiting Surgeon: Mr. E. W. Roughton. Dental Surgeons: Mr. F. H. Weiss, Mr. K. W. Goadby, Mr. W. Weiss, Mr. Rushton, Mr. H. J. Relph, Mr. S. F. Rose, and Mr. A. E. Relph. Assistant Dental Surgeons: Mr. H. R. Pring and Mr. H. Creemer Cooper. Anæsthetists: Mr. H. P. Noble, Mr. C. J. Ogle, Mr. Vivian B. Orr, Dr. J. Maughan, Dr. Kenneth Steele, and Dr. Cecil Hughes. Lecturers (winter), Dental Anatomy and Physiology: Dr. J. W. Pare, Tuesdays and Thursdays, 5 P.M., in October, November, and December. Dental Metallurgy: Mr. Hugh Candy, Tuesdays, 5 P.M., in January, February, and March. Dental Mechanics: Mr. H. Rose, Wednesdays, 5.30 P.M., in May,

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[1] Candidates educated in England or Scotland are admitted to the Primary Dental Examination on the production of the certificates that would be necessary for both Primary and Final Examinations in their own countries.

[2] Candidates who have passed in Chemistry and Physics at a First Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognised by the College, are exempted from examination in these subjects at the Primary Dental Examination.

June, and July. Dental Materia Medica: Mr. Charles W. Glassington, Tuesdays, 6 P.M., October, November, and December. Summer—Dental Surgery and Pathology, Mr. H. J. Relph, Thursdays, 5 P.M., during January, February, and March. Bacteriology of the Mouth: Mr. K. W. Goadby, Tuesdays, 4 P.M., during May, June, and July. Practical courses to comply with the R.C.S. curriculum are also held. The hospital is lighted throughout by electricity and warmed and ventilated by approved methods. Clinical Lectures and Demonstrations are given from time to time, and each student on entering passes through a preliminary course under a demonstrator. The stopping rooms have accommodation for 50 chairs. Dresserships in the extraction and stopping rooms are re-arranged every three months. Two Entrance Exhibitions, of the value of £40 and £20, are open for competition. Prizes are open for competition at the end of each course of lectures. Certificates of honour are also open in each class. The Rymer Medal for General Proficiency, value £5, is awarded annually to the most meritorious student; and the Ash Prize, value £3 3*s.*, for a Thesis on a subject in Dental Surgery. Total fee for the Special Lectures and Hospital Practice required, 40 guineas. A composition fee covering the two years' mechanical pupilage and the two years' hospital practice required by the Royal College of Surgeons will be arranged. Single Courses: Dental Anatomy and Physiology, Dental Surgery and Pathology, Dental Mechanics, Dental Metallurgy, Bacteriology of the Mouth, Dental Materia Medica, Demonstration of Dental Mechanics, £5 5*s.* each. Hospital Practice to registered practitioners by special permission of Committee, 12 months, £15 15*s.* The Committee also consider applications from medical men who may desire to attend the Anæsthetic Room for a course of instruction in Nitrous Oxide administration. Information respecting the Hospital Practice and the College may be obtained from the Dean, Mr. Sidney Spokes, who attends at the Hospital, Great Portland-street, on Tuesday *mornings.*

Guy's Hospital.—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. *The Extraction Rooms:* Patients are admitted between 8.45 and 9.30 A.M., and are seen by the dental surgeon for the day, the dental house surgeon, the assistant dental house surgeon, and the dressers. Such cases as are suitable for conservative treatment are transferred to the conservation room, taking with them a dental chart to indicate the treatment required. *The Conservation Room:* This room is open from 9 A.M. till 5 P.M. There are 55 Morrison chairs, each fitted with a saliva ejector, for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon in the week to give demonstrations and otherwise assist students in their work in the Conservation Room and Mechanical Laboratory. Dental students have the opportunity of attending concurrently at this hospital the two courses of instruction required by the examining board for the L.D.S. Eng., viz., the special lectures and practice of the Dental Department and the general lectures and practice of the Medical School. The fees for these two courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. Two Entrance Scholarships in Dental Mechanics of the value of £20 each are offered for competition annually, one in September and one in April, and prizes of the aggregate value of £35 are awarded for general proficiency and skill in Practical Dentistry. Dental students are eligible for admission to the Residential College and enjoy the other social privileges of students in the Medical School.

Staff. — Dental Surgeons: Mr. F. Newland-Pedley, Mr. W. A. Maggs, and Mr. Wynne Rouw. Assistant Dental Surgeons: Mr. H. L. Pillin, Mr. M. F. Hopson, Mr. J. B. Parfitt, and Mr. J. L. Payne. Demonstrators of Practical Dentistry: Mr. E. B. Dowsett, Mr. P. S. Campkin, Mr. F. J. Pearce, Mr. J. E. Spiller, and Mr. H. P. Aubrey. Anæsthetists: Dr. H. F. Lancaster, Mr. C. J. Ogle, Mr. P. Turner, Mr. H. T. Hicks, Mr. A. R. Thompson, and Mr. W. M. Mollison. Lecturers.—Dental Surgery and Pathology: Mr. Wynne Rouw. Dental Anatomy and Physiology: Mr. Maggs. Operative Dental Surgery: Mr. Parfitt. Dental Mechanics: Mr. Payne. Practical Dental Mechanics: Mr. Pillin. Dental Materia Medica: Dr. A. P. Beddard. Dental Bacteriology: Dr. Eyre. Dental Microscopy: Dr. Hertz and Dr. Cameron. Metallurgy: Dr. J. Wade. Practical Dental Metallurgy: Mr. Hopson. Curators of Dental Museum: Mr. Payne and Mr. Dowsett. Dean: Dr. Eason.

London Hospital.—Mr. Dolamore and Mr. Farmer give practical instruction during the winter and summer sessions on Tuesdays and Thursdays at 11 A.M. In selecting from candidates for the office of Dental Assistant priority will be given to those who have attended the greatest number of lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the dental department. A class for special instruction in filling teeth will be formed each term. Dental patients in 1905, 9138.

University of Birmingham.—The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board, so that the students may fully qualify themselves for the Dental diploma of this and other universities and licensing bodies. There is a special and well-equipped Dental Museum and Laboratory. An Entrance Exhibition, value £37 10*s.*, is awarded annually at the commencement of the winter session. The following are the regulations for Degrees in Dentistry:—1. The degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.). 2. All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees. 3. The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery. The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental department of a general hospital approved by the University. 4. *A.* In addition to the Licence in Dental Surgery the candidate must produce evidence that he has attended the Courses required by medical students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees: (*a*) Chemistry and Practical Chemistry, (*b*) Physics and Practical Physics, (*c*) Elementary Biology, (*d*) Anatomy and Practical Anatomy, and (*e*) Physiology and Practical Physiology. *B.* That he has attended the following courses and passed the class examinations in each of these subjects: (*f*) One Special Course of Lectures on Medicine, (*g*) One Special Course of Lectures on Surgery, and (*h*) Pathology and Bacteriology. *C.* That he has attended Courses and passed the class examinations in: (*k*) Dental Histology and Patho-Histology, (*l*) Comparative Dental Anatomy, and (*m*) Dental Surgery and Prosthetic Dentistry. *D.* That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period not less than six months. 5. The Final Examination will deal with the subjects in Classes *C* and *D.* 6. On the expiration of 12 months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery. 7. For this degree candidates will be required to submit a thesis containing original work and investigations in some subject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Dental Advisory Board. The degree will be awarded or withheld according to the report of these examiners. 8. The University also grants a diploma in Dental Surgery (L.D.S.) to candidates who have followed the prescribed regulations for the same.

University College, Bristol. — Dental students can enter for the full curriculum at Bristol. The Lectures are delivered at the College. Practical instruction is given at the *Royal Infirmary* by Mr. Ackland and at the *General Hospital* by Mr. Genge, both institutions being recognised by the Dental Board of the Royal College of Surgeons of England. Full information may be obtained of the Dean of the Medical Faculty, Professor Edward Fawcett, University College, Bristol.

University of Manchester.—In the University of Manchester the Dental Department forms an integral part of the Faculty of Medicine. This contains a series of laboratories, lecture rooms, and museums which will bear comparison with those of any other school in the kingdom, and the fullest opportunities for study are offered to students preparing for any of the professional examinations. Instruction adapted to the requirements of students preparing for the B.D.S.

Degree and the Dental Diplomas of the University, the Royal College of Surgeons of England, and of other licensing bodies is given during the Winter and Summer sessions both at the University and at the Victoria Dental Hospital in Devonshire-street. The required general hospital practice is taken at the Manchester Royal Infirmary. Women students are admitted to the classes in the Dental Department and for them a separate laboratory for Practical Anatomy and common rooms are provided. The composition fee for candidates for the University degree of Bachelor of Dental Surgery is 60 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the University Diploma in Dentistry is 55 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the L.D.S. of England is 60 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. Students who have already served their apprenticeship with a private practitioner, and who propose to complete the final portion of their attendance at the University and at an approved dental hospital, will be required to pay the composition fee in two equal instalments at the commencement of the first and second years of studentship. The payment of any of the above composition fees will entitle the student to attend all the classes in the following list which are required for their respective examinations. The composition fee does not include the hospital fees, the examination fees, the fee for the conferment of the degree or the diploma, the registration fee, nor the fees for chemicals and chemical apparatus (£1 15s.).

University of Leeds.—The degrees in Dental Surgery are Bachelor of Dental Surgery (B.Ch.D.) and Master of Dental Surgery (M.Ch.D.). All candidates for the degree of Bachelor of Dental Surgery are required to have passed the Matriculation examination, to have pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the da'e of passing Parts I. and II. of the first examination, and to have completed such period of pupilage or hospital attendance, or both, as may be prescribed by the regulations of the University. No candidate will be admitted to the degree who has not attained the age of 21 years on the day of graduation. All candidates are required to have passed the following examinations: the first examination, the second examination, and the final examination. Each examination will include practical work in the subjects offered. All candidates are required, before presenting themselves for examination, to furnish to the registrar certificates testifying that they have attended the prescribed courses of instruction in accordance with the regulations of the University in each of the subjects which they offer, and that they have fulfilled the other requirements of the ordinance and regulations in respect of such examination. Candidates for the diploma in Dental Surgery are required to present certificates showing that they have attained the age of 21 years, that they have attended courses of instruction, approved by the University, extending over not less than four years, and that they have completed a pupilage of three years, two of such years at least having been taken before the First Professional examination. Candidates are required to satisfy the examiners in the several subjects of the following examinations: A preliminary examination in Arts; a preliminary examination in Science; the First Professional examination; and the Final examination. The classes in the Department of Dentistry will begin on Oct. 1st. The instruction in the Preliminary subjects of Chemistry, Physics, and Biology will be given at the University in College-road. The classes in the other subjects and the systematic courses in Dental subjects will be held in the School of Medicine of the University in Thoresby-place. The systematic instruction in the School of Dentistry will be given by the following:—Anatomy: Professor T. W. Griffith. Physiology: Professor de B. Birch. Pathology: Professor A. S. Grünbaum. Medicine: Professor A. G. Barrs. Surgery: Professor H. Littlewood. Dental Surgery: Mr. A. G. G. Plumley. Operative Dental Surgery: Mr. T. S. Carter. Dental Anatomy and Physiology: Mr. A. Alan Forty. Dental Mechanics: Mr. C. Rippon. Dental Metallurgy: Mr. W. Lowson. Dental Materia Medica: Mr. J. H. Gough. The clinical instruction will be given in the Dental Department of the Leeds Public Dispensary, which is recognised by the University and by the Royal College of Surgeons. Applications for the prospectus should be made to the Dean of the Faculty of Medicine.

University of Liverpool (Liverpool Dental Hospital and School of Dental Surgery).—The University grants a diploma in Dental Surgery (L.D.S.) and degrees in Dental Surgery (B.D.S. and M.D.S.). The courses of systematic instruction are given in the University buildings, five minutes' walk from the Dental Hospital. The two institutions are now closely associated and the management of the curriculum is in the hands of a joint committee. At the Dental Hospital recent alterations have been made, and as it now stands this school offers advantages to students which are not excelled anywhere. The ground floor of the building contains the following: Extraction room, with all needful appliances; anæsthetic room, specially reserved, with every convenience; and large waiting-room for patients. The first floor has a large board-room and a very comfortable students' room set apart exclusively for the use of students. The whole top floor of the building has been thrown into one fine, airy, and well-ventilated operating room. This room will accommodate upwards of 30 operating chairs, which are of the "Morrison pattern," and each of which has a special electric light suspended before it. In the basement a very convenient workroom has been fitted up containing the necessary requirements, and there are commodious lavatories for students. A new Laboratory for practical mechanical work has also been constructed so as to meet the requirements of the curriculum It is adequately furnished with all the modern appliances of a dental workshop. A skilled dental mechanic has been engaged and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lecture at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes 12 honorary Dental Surgeons, a Demonstrator, two Anæsthetists, two House Surgeons, and a Curator. Fees for two years' hospital practice, £21. Apprenticeship.—A limited number of apprentices are admitted annually. Fees for three years, £105. Further information may be had from the Warden, Mr. W. H. Gilmour. The various medical and dental lectures are given at the University of Liverpool. The Anatomical Department has been removed to a new building, comprising a spacious dissecting room and a museum which contains an excellent collection of skulls illustrative of human and comparative dental anatomy. Fees: The composition fees are as follows: Diploma course (L.D.S.): Chemistry and Physics, £11 11s.; all other lectures, £50 in two instalments. Degree course (B.D.S.): £67 10s. for all lectures (including Chemistry, Physics, and Zoology) in three instalments. Two years' dental hospital, £21; general hospital practice, £10 10s.; three years' mechanical instruction (pupilage), £105.

Devon and Exeter Dental Hospital, 24, Southernhay, West, Exeter.—Established 1880.—The hospital is open daily (Sundays excepted) and patients are admitted between the hours of 9 and 11 A.M. Students attending the practice of the hospital must consider themselves strictly under the control of the medical officers and must not undertake any operation without the consent of the dental surgeon for the day. Hon. treasurer, Mr. J. M Ackland; hon. secretary, Mr. Henry Yeo.

SCOTLAND.

The Incorporated Edinburgh Dental Hospital and School.—The Edinburgh Dental Hospital and School is located in a spacious and well-equipped building at 31, Chambers-street and offers special advantages to dental students. The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools. The hospital attendance and clinical instruction are taken at the Royal Infirmary. The University, Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital. The special courses are taken in the hospital. The Dental Hospital practice, extending over two years, affords a student ample opportunity for a full acquaintance with every branch of dentistry. The hospital admits a limited number of indentured pupils. They receive their instruction in Mechanical Dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil. The practice and lectures of the hospital are recognised by, and qualify for, all the Licensing Boards. For the special classes, both theoretical and practical, required by dental students the directors have secured the services of an efficient staff of dental officers and lecturers. There will also be a course of demonstrations in Mechanical Dentistry. Students will receive instruction in Practical Dental Mechanics under the mechanician. The fee for clinics in gold filling is included in the Dental Hospital fee of £15 15*s*. The minimum cost of classes for the whole course of dental instruction amounts to £90 7*s*. Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow is recommended. The minimum cost of the Professional Education Triple Qualification and Licence in Dental Surgery amounts to £169 7*s*. The mechanical department is large and airy and furnished with all modern tools and appliances. The winter session commences Oct. 1st. The Museum is open to students for study. Further particulars can be obtained from the Dean, Mr. W. Guy.

Incorporated Dental Hospital and School, Glasgow.—The winter session will begin in October and the lectures will be delivered as follows. In Dental Mechanics on Monday and Wednesday at 7.30 P.M., by Mr. Hugh McKay, and in Dental Metallurgy on Tuesday and Thursday at 7, by Mr. W. Bruce Hepburn, L.D.S. Fee for each of the above courses of lectures, £3 3*s*. The lectures and instruction at the Glasgow Dental Hospital and School are recognised by all the licensing bodies in the United Kingdom. The fees for two years' hospital practice are £15 15*s*. Intending students before commencing to attend the lectures or hospital practice must produce evidence of having passed the preliminary examination prescribed by the regulations of the General Medical Council for registration of dental students. The hospital is opened daily from 5 to 7 P.M. (Saturdays excepted). Students may only enrol during the months of April or October. Summer session begins in April.

Glasgow Royal Infirmary (Dental Department).—Mr. Wm. Taylor attends at the Royal Infirmary at 3 P.M. on Mondays, Wednesdays, and Saturdays, and gives a course of instruction in Dental Surgery on these days in summer. The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry with Metallurgy, three months; Surgery, six months; Medicine, six months; Materia Medica, three months; Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the Dental Clinic is free to students of the hospital. The winter session opens Thursday, Oct. 18th.

ANCILLARY SCIENTIFIC INSTITUTIONS.

ROYAL COLLEGE OF SCIENCE, London (with which is incorporated the **ROYAL SCHOOL OF MINES**).—Mechanics and Mathematics: Professor J. Perry, F.R.S., and Dr. A. R. Willis. Biology: Vacant (Zoology), and Professor J. B. Farmer, M.A., F.R.S. (Botany). Chemistry: Professor W. A. Tilden, F.R.S., and Dr. M. O. Forster, F.R.S. Physics: Professor H. L. Callendar, F.R.S., Dr. W. Watson, F.R.S., and Mr. A. Fowler. Geology: Professor W. W. Watts, F.R.S., and Dr. Cullis. Metallurgy: Professor W. Gowland. Mining: Professor S. H. Cox (temporary). The College reopens on Wednesday, Oct. 3rd, 1906. Communications should be addressed to the Registrar, Royal College of Science, South Kensington, S.W.

ELECTRICAL STANDARDIZING, TESTING, AND TRAINING INSTITUTION, Faraday House, 62–70, Southampton-row, W.C. —Principal, Hugh Erat Harrison, B.Sc. Lond. Instructor in Mathematics: Alexander Russell, M.A. Glasgow and Cambridge. Instructor in Chemistry: Mr. J. Thomas, B.Sc. Lond. Instructor in Mechanical Engineering: Mr. Walter H. Bell. This institution, in addition to its ordinary course of training in electrical engineering, which occupies two or three years, also arranges for special instruction in all branches of electricity either by private tuition or by a specially arranged course at the College or at the works of the companies with which it is associated. There are Entrance Scholarships of the value of 80 and 50 guineas, and Exhibitions of 40 guineas. Particulars may be obtained on application to the Secretary, Mr. Howard Foulds, Faraday House, Southampton-row, W.C. Session begins Sept. 17th.

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—Chemistry and Physics: Professor Arthur W. Crossley (Dean of the school). Botany: Professor Reynolds Green. Pharmaceutics: Professor Greenish. The session commences on Monday, Oct. 1st. Medical students, or pupils intending to enter the medical profession, are admitted to the lectures and laboratory work in any or all the courses. Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges. Application for admission to the school, or for further information, may be made to the Registrar, 17, Bloomsbury-square, London, W.C.

ROYAL SANITARY INSTITUTE (WITH WHICH IS INCORPORATED THE PARKES MUSEUM). PARKES MUSEUM, MARGARET-STREET, REGENT-STREET, W.—The objects of the Royal Sanitary Institute are to promote the advancement of sanitary science in all or any of its branches and to diffuse knowledge relating thereto. It was founded in 1876 and incorporated in 1888. Sessional meetings are held in London and in various provincial centres from time to time for the reading of papers and for discussions upon subjects connected with sanitary science, and lectures and demonstrations are arranged for sanitary officers in sanitary science as applied to buildings and public works. The lectures and demonstrations are suitable for foremen of works, builders, and those engaged in the allied trades; for army officers and professional men on food and meat inspection; for meat inspectors; and for school teachers. Examinations are held in London, provincial, and colonial centres and certificates of competency in sanitary knowledge are granted. The Parkes Museum, which is maintained by the institute, contains a great variety of the most approved forms of apparatus and appliances relating to health and domestic comfort. Professors and teaching of hygiene are allowed the use of the museum for demonstrations to their students on application to the committee. The museum is open daily from 9.30 A.M. to 5.30 P.M. and on Mondays to 8 P.M. and is free of charge except when lectures or meetings are being held. There are also a large library of sanitary literature which contains, in addition to standard works on sanitary science, a collection of reports of medical officers of health over the whole country, and a reading room supplied with the principal sanitary periodicals, both home and foreign. The institute is under the patronage of the King and the officers are: President, the Duke of Northumberland; chairman of council, Colonel J. Lane Notter, R.A.M.C.; treasurer, Mr. T. W. Cutler, F.R.I.B.A.; registrar, Mr. A. Wynter Blyth; and secretary, Mr. E. White Wallis. The lecturers are Dr. J. Priestley, Dr. G. Newman, Mr. A. Wellesley Harris, Dr. E. J. Steegmann, Dr. E. Petronell Manby, Professor H. R. Kenwood, Dr. P. Boobbyer, Dr. James Kerr, Colonel J. Lane Notter, R.A.M.C., Mr. J. Osborne Smith, Mr. W. C. Tyndale, M.Inst.C.E., Mr. A. Saxon Snell, F.R.I.B.A., Mr. J. E. Worth, M.Inst.C.E., Mr. J. Wright Clarke, Mr. W. Hunting, F.R.C.V.S., Mr. James King, M.R.C.V.S. For members the annual subscription is £2 2*s*. and for associates £1 1*s*., but members and associates holding certain qualifications only pay half the ordinary rate of subscription.

THE ROYAL INSTITUTE OF PUBLIC HEALTH.—The Royal Institute of Public Health, 37, Russell-square, W.C., was founded in the year 1886 with the object of obtaining the registration of public health diplomas and the further statutory requirement that all medical officers of health should possess such a qualification. In 1905 the Fellows and members of the Institute, now numbering nearly 2000, decided to create a central public health institution in London and have erected bacteriological, parasitological, and chemical laboratories in which researches of a public-health character are undertaken and the necessary training for obtaining such diplomas are provided, together with a library, lecture room, and common room. The Royal Institute of Public Health is recognised by the University of London as a public educational institution, and its course of instruction for the diploma by the universities and other examining bodies of the United Kingdom. The Institute is under the patronage of His Majesty the King, and the Right Hon. Lord Strathcona and Mount Royal is President. The teaching staff consists of—the Principal, Professor William R. Smith, F.R.S.E.; director of parasitological department, Dr. Louis W. Sambon; demonstrator of chemistry, Mr. C. E. Harris, Ph.D.; demonstrator of bacteriology, Dr. Carl Prausnitz. Occasional lectures are given by eminent sanitarians. The Harben lecturer for 1906 was Elie Metchnikoff of the Pasteur Institute, whose lectures were published in THE LANCET of June 21st.

Annotations.

"Ne quid nimis."

THE STUDY OF FRENCH AND GERMAN FOR MEDICAL STUDENTS.

IN THE LANCET of August 18th we published an annotation commenting upon the statement made by Mr. J. G. Robertson before the British Association that German had declined as a school subject in England in recent years. We urged our readers not to lose sight of the great value of a knowledge of German, and we have now received from Professor Osler the following memorandum which he issued to the Oxford undergraduates in medicine in November last relating to the importance of the study of French and German:—

"MEMORANDUM.

"During your undergraduate days you should become familiar with the French and German languages. To do this one of the best ways is to read small French and German text-books, of which (with the advice of colleagues) I inclose a list. Half an hour a day will soon give you the necessary facility in translation. Later in your course, get into the habit of reading, in the Radcliffe Library, a French and a German periodical. You will, in this way, become familiar with foreign literature, which has ever been deemed a necessary equipment of a cultivated physician.

List of French and German books recommended to undergraduates taking science courses preliminary to medicine, and to students of anatomy and physiology:—

French.

Aubert. Phénomènes de la Vie. 1*s.* 8*d.*
Ditte. Premières Notions de Chimie. 1*s.* 6*d.*
Joubert. Traité d'Électricité. 6*s.* 6*d.*
Meric. Dictionnaire des Termes de Médecine, Franç.-Anglais. 5*s.*

German.

Born (P.). Compendium der Anatomie des Menschen. Ein Repetitorium der Anatomie, Histologie und Entwicklungsgeschichte. Sewed, 5*s*; bound, 6*s.*
Reynolds. Leitfaden zur Einführung in die Experimentalchemie, 4 Vols.:—
  I. Einleitung. 1*s.* 6*d.*
  II. Metalloide. 2*s.*
  III. Metalle. 2*s.*
  IV. Chemie der Kohlenstoffverbindungen oder organ. Chemie. 2*s.* 9*d.*
Fiedler and Sandbach. A First German Course for Science Students. 2*s.* 6*d.*
Osbonne. German Grammar for Science Students. 2*s.* 6*d.*
Schenck und Gürber. Leitfaden der Physiologie des Menschen. 6*s.*
Lang and Abrahams. German-English Dictionary of Terms used in Medicine and the Allied Sciences. 15*s.*"

We are sure that it will profit as well as interest the readers of our Students' Number to have before them the list of French and German books which are recommended to the medical under-graduates of the University of Oxford by their learned Regius Professor.

THE STUDY OF MEDICAL HISTORY.

IT is a fact, significant in many ways, that Germany, *pari passu* with her exhaustive medical observation and research, devotes to the history of medicine a profound and comprehensive study which none of her contemporaries seem concerned to imitate. The British Isles, France, and Italy, notwithstanding their splendid, often epoch-making, contributions to medicine, scientific and clinical, have little or nothing to show in the investigation of its past as against the German work in that field. It must, we fear, be admitted that of the four literatures the British ranks lower than either the French or Italian in the history of medicine—having no counterpart to the Littré of the one or to the Puccinotti of the other, while all three are not for a moment to be compared to the German, as represented by Sprengel, Hecker, Haeser, Hirsch, and Virchow of a former generation and by Puschmann, Stieda, Ebstein, Neuburger, Magnus, Pagel, and Ribbert of that now passing. And yet there is no more interesting, we had almost said fascinating, field of study than the annals of the healing art, from its first rude beginnings so finely imagined by Lucretius in the prehistoric epoch down through all its revolutions to the present day when at last it has been recognised and cultivated as the veritable "nature-study" originally vindicated by Hippocrates. Most instructive, not seldom indeed humiliating, is it to realise how long it took the professional mind to get rid of "premature generalisation" begotten of the craving for "theoretical symmetry" and to school itself in the only method of interpreting and mastering nature, the method (in Bacon's words) of "serving and obeying" her. Again, to his surprise, if not to his self-complacency, the modern student will find that biological facts supposed to be of recent discovery were known to the Hellenic world. A beautiful demonstration of this has quite recently been made by Bloch, who has shown that Aristotle's views of embryology were in full anticipation of those now accepted, but that being overlaid and forgotten under the mediæval "Aristotelianism which was far removed from Aristotle," they had to wait till the nineteenth century before they were re-discovered. Fontana's finding of the nerve filaments in the eighteenth century was quite thrown away on his contemporaries; even the great Soemmering knew nothing of it; and once more the discovery had to be made anew in the nineteenth century by Treviranus. Authority, as well as non-recognition or imperfect appreciation, militated against scientific truth, and Harvey's magnificent discovery of the circulation had to flight its way to acceptance against prejudice reinforced by "officialdom." Most wisely indeed did Gagenbaur introduce his great and still popular text-book of human anatomy with a succinct narrative of the rise and progress of the science; and a service no less instructive and salutary to the clinical student would be rendered by a luminous, not necessarily long, statement of the "previous history" of diagnosis and treatment in the various groups of diseases. In malaria, for example, we are promised by Baccelli a study of its "etio-pathogenesis" (as he terms it), showing the conditions under which it made its appearance in such localities as the Roman Campagna—conditions traceable by a history going behind the mosquito which can "carry," but does not "cause," the disease. Here the question arises, How is the student to find time for the "History of Medicine" amid the many, well-nigh overwhelming, claims on his attention? The answer is that of the German schools. While a brief summary of its main facts may suffice in reference to the particular class-work in which the student may be engaged, let its study, comprehensive and systematic, form part of a post-graduate course when the young professional man has knowledge and experience enough to appreciate the steps and stages by which the present scientific standpoint has been reached. By that time his sense of proportion, developed and quickened, will enable him to estimate aright the pioneer labour, the spade-work, the tunnelling and bridge-making by which the provisional terminus at which he has alighted has been gradually led up to, itself in turn to become the point of a new departure on the ever-extending path towards the scientific ideal. Two admirable illustrations of what such a post-graduate course as that just indicated should convey have, opportunely enough, appeared during the twelvemonth now passing—to wit, the "Vorlesungen über Geschichte der Medizin," by Dr. Ernst Schwalbe of Heidelberg, and the "Grundriss eines Systems der Medizinischen Kulturgeschichte," by Dr. Julius Pagel, professor of medical history in the University of Berlin. These two by no means bulky volumes are well worthy of translation into English, not only as excellent manuals on their special subject, but as incentives to the English-speaking profession to coöperate in the cultivation of the same most interesting, most profitable, and, so far as its medical scholarship is concerned, too long neglected field.

A SPECIAL convocation of the University of Toronto was held last week in connexion with the meeting of the British Medical Association in that city at which the honorary degree of LL D. *honoris causâ* was conferred upon Professor Thomas Clifford Allbutt, M.D., F.R.S.; A. H. Freeland Barbour, M.D.; Sir Thomas Barlow, Bart., M.D.; Sir James Barr, M.D.; Sir William Broadbent, Bart., M.D.; George Cooper Franklin, F.R.C.S.; William Dobinson Halliburton, M.D., F.R.S.; Sir Victor Horsley, F.R.C.S., F.R.S.; Donald MacAlister, M.D.; William Julius Mickle, M.D.; and Dr. W. J. Mayo of Rochester, Minnesota; Dr. Louis Lapicque of Paris; and Dr. Ludwig Aschoff of Marburg. The same degree was also conferred *in absentiâ* upon Mr. H. W. Langley Browne, M.D., chairman of the British Medical Council. It is announced that the McGill University of Montreal will confer the same honour upon Professor Clifford Allbutt, Sir Thomas Barlow, Sir William Broadbent, and Sir Victor Horsley.

A COURSE of six lectures and demonstrations will be commenced at the Post-Graduate College and Polyclinic, 22, Chenies-street, Gower-street, London, W.C, on Monday, Sept. 10th, at 9 o'clock, by Mr. W. Stuart-Low.

POST-GRADUATE STUDY.

LONDON.

The London Post-Graduate Association.—The London Post-Graduate Association is now so well known that it is hardly necessary to remind our readers that it is composed of the following hospitals and medical schools (general and special)—viz.: *General Hospitals:* Charing Cross, Guy's, King's College, Middlesex, St. George's, St. Mary's, St. Thomas's, University College, and Westminster. *Special Hospitals:* The Brompton Hospital for Consumption and Diseases of the Chest, the Hospital for Sick Children (Great Ormond-street), the London School of Tropical Medicine, the National Hospital for the Paralysed and Epileptic (Queen-square), and the Royal London Ophthalmic Hospital (Moorfields). One ticket (the charge for which is 10 guineas for a three months' course, or 15 guineas for six months) admits the holder to the clinical instruction in the wards and out-patients' departments, the operations, necropsies, and other hospital practice of all the institutions mentioned above. The holder is also entitled to attend any special post-graduate classes which may be held from time to time at any of the general hospitals named. It is a result of the advances made in medical and surgical science during recent years that the practitioner who is unable to keep himself apace practically with these advances finds that he is after a time at a great disadvantage. For the purpose of enabling qualified medical men to keep up to date in their work we can heartily recommend the scheme offered by the London Post-Graduate Association, which thus places the best of all the hospital work in London at the disposal of its ticket-holders. The office of the association remains as before at the Examination Hall. Further particulars may be obtained by writing to the Secretary, the London Post-Graduate Association, Examination Hall, Victoria Embankment, London, W.C, or by personal application between the hours of 11.30 A.M. and 1 P.M., and 2 P.M. and 3 P.M. any week-day except Saturday.

Medical Graduates' College and Polyclinic.—This institution affords to medical practitioners special facilities for acquiring technical skill and for advancing their medical and scientific knowledge. The building contains lecture- and consulting-rooms, a pathological and clinical laboratory, a Roentgen-ray room, an ophthalmoscope room, a museum, a library, and reading- and writing-rooms, &c. Cliniques are given each working day of the week except Saturday at 4 P.M., and a lecture on medicine, surgery, or their special branches is delivered daily except Fridays and Saturdays at 5.15 P.M. Classes are also held in otology, laryngology, ophthalmology, radiography, anatomy, nervous diseases, microscopy, urinary analysis, gynæcology, practical bacteriology, mental diseases, hygiene and public health, and operative surgery. Extra classes in any subject are formed to suit the convenience of practitioners unable to attend those already provided. Special tutorial classes are held for practitioners reading for the higher examinations. A complimentary ticket available for three successive days will be issued to any practitioner upon presentation of his visiting card. A monthly journal, the *Polyclinic*, recording the work done in the college, is issued free to subscribers and members. The annual subscription for medical practitioners of either sex, holding qualifications granted in any British dominions, is one guinea. Full information can be obtained from the medical superintendent at the college, 22, Chenies-street, Gower-street, W.C. The autumn session commences on Monday, Sept. 10th.

Charing Cross Hospital.—Classes for post-graduate study are held on each Tuesday and Thursday of the week throughout the sessions of the medical school at Charing Cross Hospital. The fee for each complete course is £2 2*s.*, or for either day alone, £1 1*s.* The first of the two winter courses this year will commence on Oct. 4th. Short courses of instruction in special subjects (otology, laryngology, &c.) will be arranged if a sufficient number of gentlemen give in their names as wishing to attend. Further information as to the dates and subjects can be obtained by communicating with the honorary secretary (Dr. Bosanquet) at the hospital.

In connexion with the hospitals of the Seamen's Society there are two post-graduate schools—viz., (*a*) the London School of Tropical Medicine; and (*b*) the London School of Clinical Medicine.

(*a*) *The London School of Tropical Medicine.*—The school buildings, laboratories, museum, library, &c., are within the grounds of the Branch Hospital, Royal Victoria and Albert Dock (station Connaught-road, Great Eastern Railway). Opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the service or going abroad. In the hospitals of the society are to be found cases of tropical diseases such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning Oct. 1st, Jan. 15th, and May 1st respectively. The laboratory, museum, library, &c., are open daily and clinical instruction is given daily in the wards of the hospitals. The lecturers in the school are: Sir P. Manson, F.R.S., Dr. Andrew Duncan, Dr. L. Westenra Sambon, Dr. J. M. H. Macleod, Professor R. Tanner Hewlett, Mr. James Cantlie, Mr. E. Treacher Collins, Dr. A. Crombie, Dr. F. M. Sandwith, Mr. Goodby, and Professor W. J. Simpson. The medical superintendent is Dr. C. W. Daniels. Certificates are granted after examination to those who complete a full course. Resident chambers are available for students, who must be qualified or in the fifth year of their medical studies. Prize: the Craggs prize of £50 is awarded yearly.

(*b*) *The London School of Clinical Medicine* (for qualified practitioners only).—The lecture rooms, pathological laboratories (two), museum, and operative surgery class-rooms, are in the *Dreadnought* Hospital at Greenwich, and the whole hospital of 250 beds with its Out-Patient Departments is open to students from 10 A.M. till 5 P.M. Medical, Surgical, and Special Department In-patient Cliniques are held upon every afternoon except Saturday by the senior members of the staff and operations are performed daily, whilst out-patients in the Medical, Surgical, and Special Departments are demonstrated by the assistant physicians and assistant surgeons daily in the forenoon. Practical classes are arranged three times a year in the following subjects: The Practice of Medicine; the Practice of Surgery; Diseases of the Eye; Diseases of the Throat, Nose, and Ear; Diseases of the Skin; Diseases of the Nervous System; Operative Surgery; Clinical Pathology, Microscopy, and Bacteriology; Mental Diseases; Radiography; Dental Surgery; the Administration of Anæsthetics; Hygiene and Public Health; Gynæcology; Surgical Diseases of Women; Surgical Diseases of Children; Medical Diseases of Women; Medical Diseases of Children; Applied Anatomy; and Midwifery.

Three sessions of ten weeks' duration are held in each year, beginning on Jan. 15th, May 1st, and October 1st. Every variety of disease may be studied in the wards and out-patient rooms of the hospital, at the dispensaries, and at the affiliated hospitals. Male patients only are received as in-patients by the Seamen's Society but arrangements have been entered into with the Royal Waterloo Hospital for the reception of graduates who desire instruction in diseases of women and children; with the Bethlem Hospital for those who require tuition in mental disease; and with the General Lying-in Hospital, York-road, for the prosecution of study in midwifery. These hospitals are situated on the south side of the river, are directly linked to the *Dreadnought* by both railway and tramway, and are affiliated to the London School of Clinical Medicine. The certificates of the School are recognised by the Admiralty, the War Office, and the University of London (for the higher degrees). The supply of material affords exceptional facilities for practical instruction in operative surgery and in pathology on the cadaver. The hospital also offers a wide field for the study of venereal diseases and there is a special department with open-air wards for the treatment of tuberculosis. The teaching staff is: Sir Dyce Duckworth, Dr. Frederick Taylor, Dr. J. Rose Bradford, F.R.S., Dr. R. Tanner Hewlett, Dr. Guthrie Rankin, Sir William H. Bennett, K.C.V.O., Mr. A. W. Mayo Robson, Mr. Albert Carless, Mr. William Turner, Mr. Lawrie H. McGavin, Mr. L. Vernon Cargill, Mr. Malcolm Morris, Dr. StClair Thomson, Dr. James Mackenzie Davidson, Dr. S. Russell Wells, Dr. A. Ernest Jones, Mr. Harold Burrows, Mr. E. Rock Carling, Mr. Stephen Mayou, Dr. Wilfrid Fox, Mr. A. Lawrence, Dr. Maynard Horne, Dr. Cecil Hughes, Dr. Vivian B. Orr, Mr. T. Graham Scott, Mr. W. Kenneth Steele. The extra-mural lecturers are: Dr. James Taylor, Dr. W. H. B. Stoddart, Dr. W. J. R. Simpson, Dr. James Cantlie, Dr. William J. Gow, Dr. Herbert Williamson, Mr. Russell Howard, Mr. Herbert S. Pendlebury, Dr. Alexander Haig, Dr. Robert O. Moon, Dr. Charles O. Hawthorne, Dr. Thomas D. Lister, Dr. William Radford Dakin, Dr. Robert Boxall, and Mr. W. Johnson Smith.

The prospectuses, syllabuses, and other particulars of both schools can be obtained on application to the Secretary, Seamen's Hospital, Greenwich, S.E., or from the Medical Superintendents at the Schools.

West London Post-Graduate College, West London Hospital.—The West London Post-Graduate College was started in 1895 and three years later its basis was enlarged by the provision for the post-graduates of lecture-, reading-, and waiting-rooms, &c., while owing to the continued growth of the college these were transferred in 1901 to a building especially constructed for the purpose. Over 1100 post-graduates have been enrolled since its establishment, the yearly entry being now about 200. The hospital, which contains 159 beds, is in the main Hammersmith road, about three miles from Hyde Park Corner, and very accessible by omnibus, tram, or train. The physicians and surgeons attend daily at 2.30 P.M. Post-graduates accompany the staff and the junior staff on their visits to the wards. Instruction is given in the out-patient department daily at 2.15 P.M. by the assistant physicians and assistant surgeons. The out-patient department has recently been enlarged and there is now ample accommodation for post-graduates to see and examine the patients in all the special departments of the hospital. Clinical assistants for special work are appointed from among the post-graduates, and practical classes, limited in number, for instruction in these subjects, as well as in medicine and surgery generally, are held as required. Operations are performed daily at 2.30 P.M. Post-graduates are allowed to stand close to the table and can see the operations perfectly. The surgeons often avail themselves of the assistance of post-graduates at operations. Instruction is given in the administration of anæsthetics by the anæsthetists on the operating days and post-graduates are allowed to administer anæsthetics under their superintendence. Post-mortem examinations are performed at 12 noon or 1.30 P.M., and demonstrations on recent pathological specimens are given on Mondays at 12 noon during each session in the pathological laboratory. Practical lectures and demonstrations are given each afternoon (except Saturdays), at 5 P.M., during the session. Included in this course are lectures by outside specialists on mental diseases and on public health, and in connexion with the former instruction is also given in certain asylums. The college is licensed for the teaching of operative surgery. The fee is £4 4s. each member in a class of four. The practice of the hospital is well adapted to the needs of medical officers of the Royal Navy and officers of the Royal Army Medical Corps who have obtained leave for further professional study, and the certificate of attendance at the college during such leave is recognised by the Admiralty. The pathological laboratory has just recently been completely reorganised and placed in the hands of the pathologist, Dr. G. C. Low, who attends there during the whole day. Post-graduates are given instruction in bacteriology and microscopy and Tropical Medicine. A special class meets on three mornings a week from 11 to 1, and post-graduates joining the class can work in the laboratory at other times under the guidance of the pathologist. A class will consist of 12 meetings and will commence at the beginning of each month. The fee for this class in bacteriology and microscopy will be £3 3s. The fee for the hospital practice, including all ordinary demonstrations and lectures, is £1 1s. for one week, £3 2s. for one month, £5 5s. for three months, £8 8s. for six months, £12 12s. for one year, and £25 for a life ticket; all fees to be paid in advance. A practitioner who cannot attend the whole course may attend any ten lectures or demonstrations during the session for a fee of £1 1s. A vacation class is held each year in August, the fee being £2 2s. for the course of one month, including hospital practice, or a ticket for a fortnight's hospital practice, including the lectures, can be obtained for £1 11s. 6d. The fee for a three months' course of instruction in the administration of anæsthetics, including a special class, is £3 3s., or without the class, £2 2s. A ticket for any of the above courses will be issued at any date. Arrangements can be made for gentlemen working for higher university examinations to be coached. The Winter Session commences on Monday, Oct. 8th. All communications to be addressed to the Dean, Mr. L. A. Bidwell, Post-Graduate College, West London Hospital, Hammersmith, W.

West-End Hospital for Diseases of the Nervous System.—A course of post-graduate lectures on diseases of the nervous system will be given at this hospital on Thursdays, at 5 P.M., as follows.—Nov. 1st: Dr. Harry Campbell, Demonstration of Cases. Nov. 8th: Dr. T. D. Savill, Hysterical Disorders and their Treatment. Nov. 15th: Mr. Laming Evans, Surgical Treatment of Contractures of the Hip due to Nervous Disorders. Nov. 22nd: Dr. F. S. Palmer, Friedreich's Disease. Nov. 29th: Dr. Dundas Grant, Nervous Disturbance in Connexion with Aural Disease. Dec. 6th: Dr. E. Macnamara, Tics. Members of the medical profession are admitted on presentation of their cards.

North-East London Post-Graduate College.—This post-graduate school is established in connexion with the Tottenham Hospital, N. (see p. 574), which is recognised by the University of London as a place of post-graduate study for the M.D. and M.S. degrees. Facilities are there afforded to qualified medical practitioners for taking part in the work of an active general hospital of 120 beds and for attending demonstrations of various branches of medicine, surgery, and gynæcology, with opportunities for clinical instruction in diseases of the eye, ear, throat, nose, skin, in fevers, psychological medicine, the administration of anæsthetics, and dentistry. Cliniques, lectures, and demonstrations are given by members of the teaching staff in the lecture room, in the wards, in the various out patient departments, and in certain affiliated institutions. Operations are performed every afternoon of the week except Saturday. Special classes, the attendance at which will be limited, are arranged in gynæcology, the surgical diseases of children, including orthopædic surgery, diseases of the throat, nose and ear, diagnosis of diseases of the chest, diagnosis of diseases of the nervous system, ophthalmoscopy and refraction, analysis of gastric contents, clinical examination of the blood, diseases of the skin, abdominal surgery, radiography, bacteriology, and medical electricity. The fee for a three months' course of study, which may be begun at any time, in any single department, is one guinea. A fee of three guineas admits to the whole practice of the hospital for a similar term (one month two guineas), and a perpetual ticket for the practice of the hospital may for the present be obtained on payment of a fee of five guineas. Medical practitioners who have attended a three months' course in any departments are eligible for appointment as clinical assistants in those departments. A certificate, signed by the staff, may be obtained at the end of three months' hospital attendance. A pathological museum and a pathological laboratory are available. A reading- and writing-room, containing a reference and lending library, is provided, and tea may be obtained. The hospital is connected with the Telephone Exchange (No. 23, Tottenham).

The opening lecture of the winter session, in conjunction with that of the North-East London Clinical Society, will be given at the hospital at 4 P.M. on Oct. 18th by Sir Halliday Croom.

The lecturers are as follows:—In General Medicine: Dr. Percy Kidd, Dr. R. Murray Leslie, Dr. G. P. Chappel, Dr. A. J. Whiting, and Dr. D. Forsyth. In General Surgery: Mr. John Langton, Mr. Walter Edmunds, and Mr. H. W. Carson. In Gynæcology and Obstetrics: Dr. Arthur Giles. In Diseases of the Eye: Mr. R. Philip Brooks. In Diseases of the Ear, Throat, and Nose: Mr. H. W. Carson. In Diseases of the Skin: Dr. G. Norman Meachen. In Fevers (at the North-Eastern Fever Hospital, St. Anne's-road): Dr. H. E. Cuff. In Diseases of Children: Dr. G. F. Still. In Psychological Medicine: Dr. H. Corner. In Diseases of the Chest (at the Mount Vernon Hospital and the Northwood Sanatorium): Dr. J. E. Squire. In Tropical Medicine: Mr. James Cantlie. In Radiography and Medical Electricity: Mr. Higham Cooper. In the Administration of Anæsthetics: Mr A. de Prenderville. In Pathology and Bacteriology: Dr. Basil Price.

Further information, with prospectus and syllabus of lectures and demonstrations, may be obtained from the Dean of the School, Dr. A. J. Whiting, 142, Harley-street, London, W.

PROVINCIAL.

Birmingham.—At the University of Birmingham special courses for post-graduates have not yet been instituted, except in the subject of Advanced Bacteriology (January to March) and Clinical Pathology and Bacteriology (April to June), but the various departments of the University are open to graduates who can attend any of the systematic courses on payment of a fee. Graduates may also work in the laboratories under the supervision of the professors for a small fee to cover the incidental expenses. Applications for information should be made to the Dean.

Bristol.—Courses of post-graduate instruction adapted to the requirements of those proceeding to the M.D. degree of the Universities, each lasting about 12 weeks, will be held at the Bristol Royal Infirmary and General Hospital. The course will consist of: (*a*) clinical demonstrations on cases selected from the wards and from out-patients in medicine, obstetrics, dermatology, and laryngology; and (*b*) tutorial classes in medicine, obstetrics, pathology, laryngology, bacteriology, and dermatology. Classes in clinical medicine will be held twice a week—once at the Infirmary and once at the Hospital—by Dr. J. E. Shaw and Dr. F. H. Edgeworth at the Infirmary and by Dr. J. Michell Clarke and Dr. J. O. Symes at the Hospital. Classes in obstetrics will be held once a week on alternate weeks at the Infirmary and Hospital by Dr. Walter C. Swayne and Mr. D. C. Rayner respectively. A class in pathology will be taken once a week in the museums of the Infirmary and Hospital on alternate weeks by Professor Walker Hall and Dr. Newman Neild respectively. Six demonstrations on dermatology will be given by Dr. J. A. Nixon and Dr. W. K. Wills at the Infirmary and Hospital. Six demonstrations on laryngology will be given by Dr. Watson Williams at the Infirmary. A practical course in bacteriology consisting of six demonstrations will be held by Professor Stanley Kent at University College. A tutorial class in medicine will be held on one evening a week by Dr. G. Parker, Dr. Newman Neild, and Dr. J. R. Charles in rotation and a similar class in obstetrics will be taken once a week by Dr. Walter Swayne and Mr. Rayner alternately. The fees are as follows:—For the whole course, £7 7*s.*; for classes in clinical medicine, pathology, laryngology, and bacteriology and tutorial class in medicine, £5 5*s.*; for classes in obstetrics, pathology, and bacteriology, £3 3*s.*; and for clinical medicine and obstetrics only, £3 3*s.* Applications to attend the classes should be made to Dr. Walter Swayne, 56, St. Paul's-road, Clifton, Bristol.

Cambridge.—Long vacation courses are held at Cambridge during the month of July. This year the course included lectures and demonstrations on general and special pathology by Professor G. Sims Woodhead, Dr. W. Malden, and Dr. G. S. Graham Smith on phagocytosis, "opsonins," toxins and antitoxins, methods of standardisation, the iodophil reaction in blood, diphtheria, agglutinins and agglutination methods, precipitins, and hæmolysins. If a large enough number of names are sent in a course in pharmacology (Dr. W. E. Dixon) and a series of lectures and demonstrations on protozoal diseases (Dr. G. H. F. Nuttall) can also be arranged. The pathological and pharmacological laboratories are open to advanced students and graduates. Applications for information should be made early in the year to Professor Sims Woodhead.

Liverpool.—At the University of Liverpool the department of Bio-chemistry is devoted entirely to post-graduate teaching and research upon chemistry in relationship to biology and medicine. The laboratory is open daily for research, and courses of laboratory instruction in those parts of the subject most closely related to medical work are given for medical practitioners by arrangement with Professor B. Moore. A course of lectures and demonstrations in comparative bacteriology and parasitology is given during the autumn and Lent terms by Dr. H. E. Annett, who also conducts a course of lectures and demonstrations in comparative pathology during the summer term. By special arrangement a practical course in clinical bacteriology and hæmatology is given twice weekly during the summer term by Dr. W. B. Warrington and Dr. E. E. Glynn. The Thompson Yates and the Johnston laboratories are open for post-graduate research in pathology and physiology during the winter and summer sessions under the supervision of Professor Rubert Boyce and Professor C. S. Sherrington. Courses on special subjects are given by other lecturers of the University during the summer session by arrangement with medical practitioners. At the Liverpool Royal Infirmary special arrangements exist whereby medical practitioners can keep in touch with the most recent methods adopted in hospital practice.

Manchester.—The plan adopted a few years ago of having special courses of lectures on medicine and surgery for qualified medical men has since that time been considerably modified. Classes are now held and lectures given on various special subjects, as, e.g., diseases of the heart, diseases of the respiratory organs, of the kidney, and so on, and the same obtains as to surgical matters. These lectures are designed to meet the wants of senior students and practitioners. The public health department, presided over by Professor Delépine, is largely attended by medical men, as are also the lectures on bacteriology given in the College course by Dr. Sidebotham. There is no difficulty in Manchester in the way of any practitioner who wants to have his recollections revived or his knowledge enlarged and brought up to the present standard in accomplishing his wish.

Sheffield.—At the University of Sheffield post-graduate courses are held in bacteriology and applied anatomy. Occasional courses are also given in operative surgery and clinical surgery.

Newcastle-upon-Tyne.—At the University of Durham courses of instruction are given in chemical and physical laboratory work and lectures are delivered on comparative pathology and practical bacteriology for the diploma in public health and the degree of bachelor in hygiene.

SCOTLAND.

Aberdeen.—Although there is no special provision at Aberdeen for post-graduate study such as exists in London, still there are some facilities for doing work of this nature at the University. There are fully equipped laboratories in anatomy, anthropometry, bacteriology, botany, chemistry, pharmacology, physics, physiology, public health and zoology. Graduates or others desiring to engage in special study or research may be admitted by the Senatus to prosecute such study or research in any of the laboratories in accordance with certain provisions. Research students are exempted from payment of laboratory fees but are required to matriculate each year, paying the ordinary matriculation fee (£1 1*s.* for winter and summer; 10*s.* 6*d.* for summer). Forms of application for admission as research students may be had from the secretary of the Senatus. The fees are £3 3*s.* for six hours per week in winter or nine hours per week in summer, 10*s.* 6*d.* and 7*s.* being charged for every extra hour per week in winter and summer respectively. The fee for the Public Health Laboratory for six months is £6 6*s.*, and for the bacteriological laboratory for three months is £4 4*s.*, £3 3*s.*, and £1 11*s.* 6*d.* being respectively charged for a half course or any less time. At the Royal Lunatic Asylum, accommodating above 700 patients (fees, £2 2*s.* for three months), arrangements are made for extra teaching in the higher departments of medical psychology and cerebral pathology for graduates who desire it or wish to obtain the certificate of the Medico-Psychological Association of Great Britain and Ireland

Clinical work may be done at the following places:—(General Hospital): Aberdeen Royal Infirmary (accommodating 200 patients, perpetual ticket £6, or *first* year £3 10*s.* and second year £3, thereafter free); Sick Children's Hospital (75 patients; first year £2 2*s.*, then £1 1*s.*); City (Fever) Hospital (100 beds; £1 1*s.* for three months); General Dispensary and Lying-in and Vaccine Institution (10,000 out-patients per annum; perpetual fee £3 3*s.*); and Ophthalmic Institution (16,000 patients per annum, fee £1 1*s.*). During the summer session (April to June) special classes, each costing £2 2*s.*, are held at the Royal Infirmary, the subjects being Diseases of the Skin, Medical Electricity, Dental Surgery, Anæsthetics, Ophthalmology, and Gynæcology. Lectures on Diseases of the Ear and Throat are given at the dispensary and on Tropical Medicine at Marischal College. In Tropical Medicine the course embraces attendance on (1) the ordinary course of Bacteriology (Systematic and Practical) as required for M.B., Ch.B., or D.P.H.; and (2) special course of 25 lectures on Tropical Medicine. A detailed account is given of malarial fevers, including hæmoglobinuric fever, yellow fever, plague, dengue, Malta fever, heat stroke, and other fevers found in the tropics, beri-beri, cholera, dysentery, sprue, tropical liver diseases, leprosy, yaws, oriental sore, filariasis and parasites generally, and mycetoma.

Edinburgh.—A post-graduate vacation course in medicine, in connexion with the University and Royal Colleges, has been instituted, and will be held during the present year from Sept. 17th to Oct. 6th. The course will consist of lectures, demonstrations, and practical hospital and laboratory work in the various departments of medicine and surgery and full advantage will be taken of the opportunities for clinical work offered by the Royal Infirmary, Royal Hospital for Sick Children, and the Royal Maternity Hospital. Instruction may be obtained throughout the year as heretofore, but particularly during the summer session, in a number of subjects in special courses provided by members of the extra-mural school for graduates and senior students. Since the introduction of an examination for the degree of Doctor of Medicine these classes have been taken advantage of by those proposing to go on to this examination. During the weeks preceding the examination there are short special courses in ophthalmoscopy, in laryngology, in clinical pathology, in the examination of the blood, in bacteriology, and in the methods of physical diagnosis. The classes are mainly practical and are much valued by graduates as a means of brushing up their knowledge.

Glasgow.—At Glasgow the possibilities for post-graduate work are considerable and in almost every department graduates have opportunities for acquiring more special knowledge or carrying on original work. In pathology, courses in "Practical Bacteriology" and "Pathological Histology" for graduates will be commenced in the pathological department of the Western Infirmary on Monday, Oct. 22nd. The courses will extend over eight weeks, each class meeting thrice weekly. The fee for either course is £3 3*s.*, and for both courses £5 5*s.* In the Pathological Institute there is a limited number of rooms specially fitted up for research work and arrangements can be made for graduates who are desirous of engaging in work of this nature. Those interested in embryology may take out the practical course, or if they desire to do special work may obtain the use of a table in the embryology laboratory with such guidance and help as the lecturer can give. The University also has the right of nomination to a table in the laboratory of the Marine Biological Station at Millport. This station is very well off as regards the richness and variety of the fauna which can readily be obtained and kept alive in the tank rooms under approximately natural conditions. It thus offers facilities for various kinds of biological study and particularly for physiological and pharmacological work on the marine invertebrates. In public health the University now gives the degrees of B.Sc. and D.Sc. according to the conditions laid down in the ordinances. Post-graduate instruction in public health laboratory work is given in the University laboratory during both winter and summer sessions, and opportunities are offered under prescribed conditions for original research work. In physiology and materia medica such facilities as are possible are afforded to those wishing to engage in original research work. A course of lectures on Physiological Chemistry will be delivered in the winter months by Dr. E. P. Cathcart, University lecturer on Physiological Chemistry. It may be noted that new laboratories for physiology, materia medica, and public health are now in the course of erection. So far as can be ascertained it is not likely that the building and equipment of the new premises will be completed before the spring of 1907, but when completed these laboratories will be provided with rooms suitably equipped for research work, in which graduates will be able to work in absolute privacy except in so far as they may wish advice and assistance from the teaching staff. A course of clinical surgery or clinical medicine may be taken at the Western Infirmary on payment of a fee of £2 2*s.* to the hospital and £3 3*s.* for clinical instruction. At the Eye Infirmary during the early winter months a post-graduate course of about a dozen lectures and demonstrations on Diseases of the Eye will be conducted by the surgeons of the infirmary. No charge is made for this course. Dr. Freeland Fergus at the Western Medical School lectures to graduates from November to February on Diseases of the Eye. The fee for this course is £1 1*s.* At the Maternity Hospital courses in midwifery commence every month. The fee for the first month is £2 2*s.* and later is £1 1*s.* per month. Those taking out this course see all the work of the hospital and are allowed to undertake obstetric cases and minor operations, both in the internal and external work of the hospital. The opportunities thus afforded are exceptional when we consider that each year on an average 20 Cæsarean sections are performed and forceps are used in 250 cases. At Anderson's College Medical School a six months' course of laboratory instruction in public health is given which is recognised by the Scottish colleges and by the University of Cambridge as qualifying for their Diplomas in Public Health. Supplementary to the laboratory work a three months' course of lectures is given when required on "Physics, Meteorology, Practical Sanitation, Sanitary Law, and Vital Statistics." By attendance on this course candidates for D.P.H. are exempted from three months of the necessary six months' out-door work. Graduates desirous of taking out a course of operative surgery can obtain the necessary facilities by arrangement with the Dean of Anderson's College. A new course at the Royal Infirmary will be opened on Sept. 4th by Major George Lamb, M.D., I.M.S., by a lecture on the Etiology of Plague. In organising these courses the endeavour has been to make them as practical as possible and to devote attention especially to diagnosis and the newer methods of investigating disease. The practically unlimited material at the Royal Infirmary affords facilities for studying disease in all its phases and enables the teachers to demonstrate a great variety of cases illustrating details in diagnosis which in a smaller clinical field would be impossible. The courses are arranged differently from time to time so as to give a variety in the grouping of subjects and a rotation in the teachers. The course to be opened on Sept. 4th will include 120 meetings. The series are:—1. Diseases of the Eye: Dr. A. Maitland Ramsay. 2. Diseases of the Kidney and Bladder: Dr. David Newman. 3. Clinical Medicine: Dr. J. Lindsay Steven and Dr. T. K. Monro. 4. Clinical Surgery: Mr. John Barlow, Mr. H. Rutherfurd, and Dr. A. N. McGregor. 5. Diseases of the Ear: Dr. J. Kerr Love. 6. Diseases of the Throat and Nose: Dr. Robert Fullerton. 7. Hæmatology: Dr. W. K. Hunter. 8. Gynæcology: Dr. Balfour Marshall. 9. Practical Pathology: Dr. Charles Workman. 10. Bacteriology: Mr. David McCrorie. A copy of the syllabus may be had by making application to Dr. Maxtone Thom, superintendent of the Royal Infirmary.

IRELAND.

Belfast.—At Queen's College a course in clinical pathology, consisting chiefly of practical instruction, is given during the summer session, and, should a sufficient number desire to attend, a post-graduate course of practical work in the application of methods of chemical physiology to clinical investigation is also held. A course in clinical pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in this department for the public health committee of the Belfast corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, and the diagnosis of cases of infectious diseases. Subject to the number of students presenting themselves, arrangements are made for the necessary practical instruction (1) in the chemical laboratories; (2) in the pathological and bacteriological laboratories; and (3) for outdoor sanitary work under the medical officer of Health of Belfast. These courses have been approved by the Privy Council in connexion with the degree of M.D. in State Medicine in the University of London. The certificates of these courses are also accepted for the diploma in public health granted by the

Royal University of Ireland, the University of Cambridge, and the various licensing bodies.

Dublin.—At Trinity College, during the summer session, a three weeks' post-graduate course is given. This includes instruction in pathology, clinical medicine, and surgery; diseases of the ear, throat, and nose; diseases of the eye; gynæcology; anatomy; x rays; operative surgery (on the cadaver); diseases of the skin and cystoscopy. The various lectures and practical courses are given in the laboratories of Trinity College and the clinical instruction is given at certain of the Dublin hospitals. The fee for the course is £5 5*s.* and arrangements are made enabling a limited number of the class to live in college rooms and dine in hall at a cost of £1 per week. Full particulars and a time-table of the classes may be obtained from the Honorary Secretary, Dr. Alfred R. Parsons, Lower Fitzwilliam-street, Dublin.

At the Royal College of Surgeons in Ireland post-graduate courses will be held from Sept. 24th to Oct. 13th. Courses are also held at the end of the summer session. Further particulars can be obtained from Professor Fraser at the Royal College of Surgeons.

Arrangements are also concluded by the Medical Board of the Mater Misericordiæ Hospital for the delivery during each summer of a full course of post-graduate instruction in connexion with the Medical School of the Catholic University.

THE BRITISH MEDICAL MAN ABROAD.

THE conditions of medical practice have much altered in this country of late. Professional incomes in many places have been lowered seriously by the unfair tactics of so-called medical aid societies, and the position of servant to which some of these associations would reduce their medical officer is one that liberally educated gentlemen do not welcome with enthusiasm. We have pointed this out with much detail in many issues of THE LANCET and we have reason to think that improvement is at hand, but there is yet a time of severe struggle ahead. Again the expenses of living have gone up for medical men as they have for all the middle and upper middle classes of the country, while more money is required to secure the necessary medical degrees and diplomas owing to the longer curriculum and the more expensive equipment. These facts account, though only partially, for the increased number of medical men who having obtained British medical qualifications desire to settle abroad. Other factors at work are the spirit of adventure, the feeling that in a new country there is more elbow-room and more chances of getting out of the ruck, and the increased facilities of transport. Newspapers and books galore nowadays make us familiar with life in other lands, while trains and steamers will take us all over the world in a short time and at a comparatively small expense. For this reason or that, the number of medical men who make inquiry from us as to their legal and professional position in a foreign country grows yearly larger, and in the following columns we make an attempt to give the information that is usually sought.

Speaking generally, our colonies make it easy for medical men from home to practise there, but the same is not the case on the continent, where there is an obvious tendency towards protection. But in the colonies there are not many openings for practice except for those who are willing to "rough" it and work hard. In Canada there are outlying districts of British Columbia where a good start might, perhaps, be obtained; but it must be remembered that Canada possesses advanced medical schools and is a sparsely populated country as yet. In Australia the prospect for the British practitioner is not greater than that which faces him in Great Britain. The medical profession is, in fact, crowded in all places at home and abroad where the circumstances of practice are favourable, and many practitioners who have gone out from the mother country have had to leave the colonies unsuccessful, or have been very hard pushed to make both ends meet. The graduates of the colonial universities every year more than meet the usual vacancies, and the local men as a rule get on better than strangers, having friends to talk of them and help them to official positions. It used to be generally believed that, even where there was a large supply of general practitioners in the big colonial towns, there would still be good openings for men who have specialised in such branches of practice as the treatment of eye and ear diseases. This is partially true. There are openings of which good men can take advantage. But as a rule the openings in the colonies for new comers are in country districts where the medical man, besides being proficient in every branch of the profession, must be ready to lead a hard life. It is desirable that every colonial practitioner, intending to start in a country district, should be of good physique and not only able to ride but able to take care of his horses.

There are, of course, certain colonial appointments made in this country particulars of which will be found in our columns.[1] In various districts of South Africa there are appointments as district surgeons and railway surgeons made by the Colonial Office. Candidates for these posts should apply to the assistant private secretary at the Colonial Office for information, and their chances of success will be much increased by having passed through one of the schools of tropical medicine. The duties of colonial medical officers involve medical charge of a district, including as a rule the charge of a hospital and a lunatic asylum. The medical officers also supervise the sanitation of their districts, and as a rule give gratuitous attendance to all Government officials.

The United States of America form a rich and well-populated country to which, as speaking our language, it is natural for the British medical man to desire to go. The regulations for practice in the various States differ much, but it will be found that wherever the social conditions are pleasant and the opportunities for emoluments good there will be plenty of competition. There is an enormous number of medical men in the United States, the proportion of population to medical men in some of the thickly populated centres being not more than 500 to 1. The British medical man contemplating starting in medical practice in the United States will be prudent to make full inquiry before deciding on the locality, and his chance of success will be enormously increased by his having some good introductions.

FRANCE.

No one—native or foreign—can practise on French territory unless he be provided with the degree of M.D. of a French faculty. Five examinations have to be passed and in addition a thesis must be written and "sustained" (*defended*). In the class attendance and in the professional examinations no allowance or concession is made to *foreigners* in respect of any medical classes which they may have attended or any qualifications which they may have obtained in any other country. Foreigners who intend to practise on French territory must before commencing their medical studies take the certificate in general education known as the "*diplôme de Bachelier de l'Université.*" Foreigners may graduate as M.D. at a French university without this "diplôme," but in that case they cannot practise in France. The majority of the graduates of this class are Roumanians, Servians, and residents in South America.

As regards the time necessary for the passing of these examinations qualifying for the M.D. degree, the 16 "inscriptions" are given *en bloc* to a qualified foreigner, who may consequently pass his examinations as rapidly as is convenient to himself. Nearly all the examinations are *vivâ-voce* in French only. A British practitioner desirous of qualifying in France must address an application to that effect to the Minister of Public Instruction, and at the same time forward to that Minister a translation into French (by a sworn translator—*traducteur juré*) of his certificate of birth and diplomas duly viséd by the British consul. Provided the British practitioner in France be not obtrusively combative and insular in his ideas his social position depends entirely on his scientific merits, and may be a very good one.

ITALY.

Some years ago the British and American consuls at the great centres of Italian population and commerce combined to form an estimate of the money brought annually into the kingdom and spent within its borders by the English-speaking world. That estimate, an approximate one necessarily, which they carefully checked by every qualifying consideration conceivable, amounted to £20,000,000 sterling, about one third of Italy's whole revenue at that time. Since then the yearly influx of English and especially of American visitors has greatly increased, so that were a similar calculation to be made now the estimate would doubtless be still larger. This is a fact of great importance from whatever side it is contemplated. For us, as medical journalists, representing the interests of the profession, it has peculiar significance, first, as implying a necessarily large and continuous demand for English-speaking practitioners; next, as also implying on the part of Italy a sincere wish in her own self-interest to welcome such practitioners. It is true that of late years an active agitation, having for its object the expulsion of all foreign practitioners from the country, has been carried on by a section of the medical profession in Italy, but the movement has proved only partly successful, the public at large being well aware of the injury which the adoption of such a measure would inflict upon its interests. The British medical men and their American *confrères* form a prominent reason for Italy continually to attract that portion of the travelling public from which she derives so much of her annual revenue. There are therefore excellent reasons why every facility should be offered to them for exercising their calling freely in her cities and health resorts, and we may state at once that the regulations which still exist in Italy with respect to the foreign practitioner are most liberal and fair, it being open to anyone possessing a medical qualification recognised as legal in the country of its origin to engage in practice amongst the foreign visitors and residents within her borders. The restrictions ruling in Switzerland, France, and, indeed, nearly every other European country, do not exist in the Italian kingdom. The medical man's qualification, certified by ability to produce his diploma, is quite sufficient. He has, therefore, (*a*) no examination to pass; (*b*) no fees to pay; (*c*) no Government forms to comply with; and (*d*) requires no previous residence in the country as a "condition precedent" to practise. On the other hand, in a country compelled by its financial requirements to impose taxes in every possible direction the English-speaking practitioner has to pay the heavy income-tax ("ricchezza mobile" it is called) of nearly 13½ per cent., besides being liable to the comparatively mild "tassa di famiglia" (tax on domestic servants, &c.), levied on foreign and native residents alike. As to the career Italy offers to the English-speaking practitioner it is in some respects better, in other respects worse, than it was some years ago. It is better inasmuch as Italian medicine and surgery have greatly improved of late years and the foreign practitioner, particularly in those cities which are the seat of medical schools, is not in danger, as he used to be, of getting out of touch with the advance of the profession. Indeed, the British medical man may keep himself *au courant* with the latest accession to medical doctrine as conveniently in the Italian as in any other kingdom. By graduating at one or other of the many Italian schools he can obtain the *entrée* to the medical societies, the congresses (provincial and national), the hospitals, the class-rooms open to the native practitioners, and also become entitled to the reduced railway and steamboat fares conceded on occasion to all duly qualified Italians. Indeed, he is generally welcome to them on the ground of professional *fratellanza* (brotherhood), but the graduation above indicated gives him a right to what he would otherwise owe merely to courtesy. On the other hand, the career is less favourable than formerly on account of the larger number of English-speaking competitors whom it now attracts and who comprise not only Englishmen and Americans, but Swiss, Germans, and other nationalities as well. Their harvest (generally limited to three or four months of the "season") entails immense, almost excessive, activity, compensating the comparative idleness of the months before and after it. Upon this short period of remunerative work the practitioner must therefore rely to carry him through the entire year, and with heavy expenses to meet for housekeeping, house rent, servants' wages, taxes, &c., it becomes a serious matter for him when the "season," as often happens, turns out a poor one. He may certainly be able to supplement his winter's income by taking up practice at one or other of the summer resorts, but such practices are difficult to find and with few exceptions are of little value. Failing this he will find nearly the whole summer on his hands, for it is useless to remain at his post during the hot season while his patients have all left to seek the cooler air of the Alps and the Tyrol or have returned to their own country. Nothing is then left for him but to follow their example and thus to incur the heavy expense of moving somewhere else with his whole family. Nevertheless, for a well qualified man with sufficient private means to tide him over the first two or three years, who is possessed of winning manners and supplied with good social introductions, there are always openings where he can still find or create a profitable *clientèle*, although his possible income at any of the smaller health or pleasure resorts will necessarily be a limited one. One word of warning in conclusion. Let anyone who is tempted to buy a practice in Italy proceed with even more caution than he would in negotiating one in his own country. In the first place, the foreign population of nearly all Italian towns is largely a floating one, composed chiefly of people who remain for but a few weeks, often for only a few days in one resort and many of whom never come back again. The vendor of a practice in a place of this sort will have many patients on his books whom he cannot possibly introduce in any way to his successor and a good many others whom he may introduce but who will never return to the locality, or at best do so only at long intervals, and can therefore form no permanent or profitable part of his successor's *clientèle*. His hold upon the practice is, in fact, of a peculiarly personal kind and cannot, in the nature of things, be easily transferred to another. Secondly, the purchaser himself must be a man fitted for this particular class of work, or he may discover too late that he cannot make it pay and that the capital which he has expended has been spent to no purpose. A similar remark is doubtless true with regard to all such transactions, but it applies with special force in the circumstances now under consideration, where the physician has to deal with patients of such varying types and diverse characteristics as are to be met with amongst the travelling public in an Italian health or pleasure resort. To achieve a full measure of success the foreign practitioner in Italy must not only be a man of good all-round attainments, conversant with all branches of his profession, but should be possessed of an unusual share of sympathy and tact, for the exercise of which he will have daily scope amongst patients on whom illness falls with peculiar sadness, alone, as they so often are, and helpless in a foreign land.

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[1] See THE LANCET, April 28th, 1906, p. 1151, for a full account of the Colonial Medical Service.

GERMANY.

Foreign diplomas are not legally recognised in Germany as entitling their holders to practise medicine, so that British medical men desiring to settle in that country have to attend all the classes and pass all the examinations. A young German before commencing the study of medicine must pass an *Abiturienten-Examen*. That of a gymnasium requires a knowledge of French, Latin, Greek, mathematics, history, and theology. Or the examination of a *Real-Gymnasium* or an *Oberrealschule* may be passed. In the latter event more stress is laid on modern languages, mathematics, and natural-history, and English is required instead of Greek. Foreigners have, as a rule, to pass this examination, but if they have already passed a similar one in their own country they may be exempted from it by a special order to be obtained from the Minister of Public Instruction for each individual case. Medicine can only be studied at a university; the curriculum lasts five years, after the second of which the examination called the *Tentamen Physicum* must be passed; it includes anatomy, physiology, chemistry, physics, and natural history. After the end of the fifth year the student presents himself for the "State Examination," which is practical as well as theoretical, and includes medicine, surgery, obstetrics, gynæcology, pathology, materia medica, and hygiene. After passing the State examination the medical man, having previously obtained his qualification, has to act as clerk and dresser at a university clinic or a recognised hospital. If the medical man wishes to have the title of "doctor" he has to pass another examination, which is little more than a formality, but the degree of doctor without the State examination does not confer the right to practise. The law does not allow qualified British practitioners any exceptional facilities in passing the examinations; the time of study may possibly be made a little less than five years for those who have already studied abroad, but a special order, very difficult to obtain, is always required for this purpose. A thorough knowledge of German is essential. The fees for lectures are at least £130 and the examination fees about £12. The fees for the degree of M.D. vary from £10 to £20, being highest at Berlin University, which is the degree that is most popular with alien medical men. There is sometimes no prohibition set against holders of British diplomas practising in Germany, provided they do not make use of any professional titles resembling those of qualified German medical men. Medical men practising in this way must, however, understand that the law regards them as unqualified, and that they have none of the rights or privileges of the medical profession.

AUSTRIA—HUNGARY.

In order to legally practise in Austria it is necessary to become a naturalised subject, which necessitates five years' residence in the country. The ordinary five years' curriculum of an Austrian University must be attended and if this has been done and the tests have been successfully passed it is unlikely that the naturalisation would be delayed. A holder of a foreign diploma, who is qualified to practise in his own country, may pass the examinations within a shorter time than five years.

Requests for admission to practise in Hungary must be addressed to the Minister of Education who decides upon the conditions of admission after consultation with the Medical Faculty of the University of Budapest. Usually the applicant has to pass three medical examinations, for which a total fee of 225 crowns has to be paid, but this fee is reduced to 60 crowns in cases where the foreign applicant is qualified to practise in his own country. The examinations must, however, be passed.

BELGIUM.

Foreign practitioners must pass the Danish professional examinations.

NETHERLANDS.

A medical practitioner holding British qualifications cannot practise in the Netherlands without being also qualified in the Netherlands. For this purpose it is necessary to pass the medical examinations of one of the universities.

SWITZERLAND.

Foreign practitioners must pass the first, third, and fourth State Examinations. These examinations are held in either French (at Lausanne and Geneva) or German (at Bern, Basel, and Zürich). In addition to the British five years' curriculum practitioners would require one or two years' additional study. The examination fees amount to about £9.

SPAIN.

To practise in Spain or her colonies it is necessary for the holder of British qualifications to send his diplomas to the University of Madrid. After inquiries as to identity a diploma will be sent to the applicant who can then legally practise on the same conditions as a Spaniard—namely, the payment of certain duties.

PORTUGAL.

Holders of foreign diplomas must apply for examination at the schools of Lisbon or Oporto or the Faculty of Coimbra. The cost of the examination, including the diploma, is about £50. For the last examination the presentation of a *printed* dissertation is required.

TURKEY.

Every foreign medical practitioner desirous of settling in Turkey for the purpose of practising his profession must undergo the ordeal of the so-called "colloquium." This is a sort of professional examination very easy in itself but a source of annoyance and vexation to Europeans by the dilatory propensities of orientals and their habit of conducting business in an indolent and easy-going way. "Yavash, yavash" ("No hurry; take matters at your ease"), is the motto of every Turkish official, high or low. The "colloquium" itself takes about half an hour's time, whereas the preliminary steps and arrangements and the subsequent formalities necessary for the final obtainment of the medical permit lasts for weeks and even months. It frequently happens that a certain day and hour are fixed for the examination and that the candidate waits for hours, to be told at the end that there is not the requisite number of professors present to subject him to the test of the "colloquium." This postponement may be repeated twice or even three times and is naturally a matter of trial and irritation to the foreign medical practitioner, especially when he has, probably, to leave the Turkish metropolis at a fixed date to take up the duties of an appointment at a distant part of the empire. It is hoped, however, that matters will improve in every direction, as the whole organisation of the Medical School at Constantinople is undergoing at present important beneficial changes and alterations. To meet, more or less, all the necessary modern requirements a new medical school has been erected at Haidar-Pasha, a district across the Bosphorus, on the Asiatic coast of the Marmora. It is a large stately building, commands a magnificent situation, and is being equipped with all the modern requisites for efficient medical education. In former years foreign candidates were allowed to use the language of their respective countries at a "colloquium," of course with the assistance of an interpreter, but it was found that this concession was taken advantage of by unprincipled persons with no proper medical education, who were thereby enabled to receive a professional permit for practising medicine. The "colloquium" must therefore at the present time be passed either in French or Turkish without any interpreter, the choice of the language being left to the examinee. The possessor of a foreign diploma is tested, as a rule, in four subjects and the testing consists in three or four questions in each subject, which the candidate has to answer orally. It has not yet happened that a European physician failed to pass the "colloquium." The fee for it is about £8 and there are in addition some registration expenses.

RUSSIA.

The law relating to foreign medical practitioners desirous to practise in Russia is contained in the two following paragraphs of the *Vratchebny Ustav* or medical statute:—Section 93 (*a*): No one, whether a Russian subject or a foreigner, who has not a diploma or certificate from a university or from an Army Medical Academy, has the right to follow any branch of medical or veterinary practice in Russia; (*b*) foreign medical practitioners who wish to practise medicine in Russia must, without exception, know the Russian language. Section 94: Of foreign practitioners who shall be invited or who may come to Russia the right to decide which of them shall be permitted to free practice here and under what conditions is in the hands of the Medical Council of the Ministry of the Interior; some shall be permitted only after the usual examinations and consequent granting to them of a learned degree; others more distinguished after an oral examination in the Medical Council; lastly, others who have made a name in the scientific world by their writings or unusually successful practice, or who have occupied professorial chairs or other important medical appointments in other countries, may be permitted to practise without any examination, solely on the decision of the Medical Council, confirmed by the Minister of the Interior, as to the worthiness of such practitioners.[1] Previous residence in the country before practice would not be necessary except in the case of the first group mentioned, who would have to pass through the usual five years' course of a Russian medical curriculum. As to the prospects of a British practitioner in Russia the country and the smaller towns can present no attraction to an English medical man, even if the fees obtainable would support him, which they would not. In the two capitals, Moscow and St. Petersburg, the field is wider. Competition is, however, great, fees are as a rule small, and bad debts many. The frequency of bad debts results from the unwritten law by which medical men do not send in accounts, but leave the patient to pay what he considers a suitable amount.

EGYPT.

Duly qualified British practitioners have no examinations to pass and no fees to pay except a nominal sum for registration. They must, however, exhibit their various diplomas to the Director-General of the Sanitary Department in Cairo and obtain a certificate of good character from the British consul. A knowledge of French or Italian and Arabic would be essential to any newcomer desirous of practising all the year round, for the tourist season only lasts from November to April. Egypt has been a popular place of late with English medical men and there are few or no vacancies for additional English practitioners in Cairo, while the field is already well occupied at Alexandria and the other obvious resorts.

JAPAN.

According to the regulations for medical licence "persons holding either diplomas of foreign universities, or medical schools, or foreign licences for practising medicine may be granted licences for practising medicine in Japan, without being subject to the usual medical examination, upon producing such diplomas or licences obtained in foreign countries to the satisfaction of the home authorities." English medical practitioners will therefore have no difficulty in obtaining a licence in Japan. The fee required for a licence is three yen (about 6*s.*) and with this exception there are no charges in respect of the medical licence. A local rate, which would be a small fee only, may have to be paid on opening a practice. A correspondent informs us that English practitioners in the foreign quarters of Japan are at some disadvantage for the reasons that the druggists, who are now nearly all Japanese, sell their drugs at a cheaper rate to native practitioners, and, moreover, living is cheaper for the native than for the foreigner. Foreign practitioners depend largely upon shipping and contract business work.

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[1] This Section dates from 1835: it was amended in 1842, 1845, and 1857.

UNITED STATES OF AMERICA.

The laws regulating the practice of medicine in the various States and territories of the United States of America differ to a considerable extent in detail. In spirit, however, they are beginning to assume that uniformity which all medical reformers must desire for them. It has long been pointed out that one of the most open doors to abuse of medical practice in the United States was the fact that while in some States an excellent medical curriculum was required before admission to legal practice, in other States but little scientific training was exacted and freedom to practise was extended to dangerous forms of quackery. This position of affairs had its origin, of course, in the evolution of the United States, certain divisions of the country being in the forefront of civilisation while others were, to say the least, in a rudimentary plight; but of late a great process of levelling-up has been witnessed. The progress of the United States is in no way better shown than in the fact that throughout its vast length and breadth there is now an attempt to secure for the people of the country adequate medical treatment based on scientific grounds. A *résumé* of the legal regulations for medical practice in the States and territories of the United States of America has been published at the office of the *Journal of the American Medical Association*, Dearborn-avenue, Chicago, Illinois. In this digest of the medical laws of the various States, which has been brought quite recently up to date, existing legislation is explained on broad grounds so far as it pertains to medical practice. If the information with regard to some particular State is anywhere scanty in detail it is always possible for the intending practitioner to communicate with the secretary or executive officer of the medical board at the capital of the State.

We must continue to warn the British medical man desiring to practise his profession in the United States of America that in all the more enviable centres he will find a vast number, almost a plethora, of medical men, the great proportion of whom have been thoroughly well educated and trained. He must remember also that in the more important States, generally speaking, although the remuneration may rule high, the expense of living is proportionate. He will understand that the less highly the State is developed the more easy will it be for him to obtain a footing but the less pleasant in all probability will be his professional career. Take, for example, Wyoming. Here the State Board of Medical Examiners recognises as exactly equal "a member of the American Association of Medical Colleges, the Homeopathic Institute, or the National Eclectic Medical Association, or any college of similar standing in foreign countries." Anyone possessing a diploma from one or another of these institutions will receive a certificate from the State Board without examination on payment of $5. Certainly there is not much bar to medical practice by the British qualified medical man, but as the door is widely open at the same time to members of "any college of similar standing" to the National Eclectic Association it will be seen that not much distinction is attached to the licence. Similar views will be found prevailing in, among other States, Wisconsin, where the board of medical examiners used to include not only homœpaths but two eclectics and one osteopath, and we have not heard that it has become more select We mention this to show that it is necessary for a British medical man, who desires to practise his profession in the United States of America, to obtain full information before taking action by writing to the medical board of the State selected.

CANADA.

The Canada Medical Act, 1902, authorises the creation of "The Medical Council of Canada" (but it is not in force yet owing to the Quebec Legislation having refused to ratify it), with power to establish a qualification in medicine entitling holders thereof to practise in all the provinces of Canada, but no regulations have as yet been issued. As a general rule, the possession of British diplomas and degrees entitles the holders to practise in Canada after having obtained a licence from the provincial medical boards and paid certain fees.

Prince Edward Island.—No one can practise medicine, surgery, or midwifery in Prince Edward Island unless registered or licensed by the Council of the Medical Society of Prince Edward Island. The Council admits upon the register any person who is duly registered by the General Medical Council of Great Britain.

New Brunswick.—Practitioners in New Brunswick must be registered by the Medical Council of the province. A candidate for registration (1) must pass an examination in English, arithmetic, algebra, geometry, Latin, elementary mechanics, history, geography, and two of the following languages, Greek, French, and German, unless he has already matriculated at some college in the United Kingdom, Canada, United States of America, or Europe, or holds a first-class teacher's licence from the Board of Education of New Brunswick; (2) he must afterwards have studied for four years and attended some university or college or school of medicine for four sessions of not less than six months each and have attended lectures on anatomy, pharmacy, &c.; (3) he must have attended the general practice of a hospital for 12 months; (4) he must have obtained a degree in the above subjects from a university, college, or school requiring such four years' course of study or must have passed an examination in them before the examiners in New Brunswick; and (5) he must be over 21 years of age. A fee of $10 is required and medical practitioners are liable to an annual fee of from $1 to $2.

Nova Scotia.—Registration and a licence from the Provincial Medical Board are required, which admits upon payment of the registration fee all persons who are duly registered by the General Medical Council of Great Britain.

Quebec.—Practitioners must be licensed and registered by the Provincial Board, which may license without examination holders of medical qualifications from British universities or corporations.

Ontario.—Registration by the Council of the College of Physicians and Surgeons of Ontario is necessary and it is optional for the Council to admit to registration all persons who are duly authorised to practise medicine, surgery, and midwifery in the United Kingdom and Ireland upon terms which the Council may deem expedient.

Manitoba.—Registration by the Council of the College of Physicians and Surgeons of Manitoba is necessary and applicants for registration must be members of an incorporated medical body in Canada giving similar privileges to persons incorporated in Manitoba. Application should be made to the Council by British medical men desiring to practise in the province. Licences to practise are issued to women upon the same terms as men.

North-West Territories.—Any person possessing qualifications from any university or corporation in Great Britain or Ireland is entitled to practise medicine and surgery, on production of the testamur and on proof of identity, after registration by the Medical Council (the Registrar's office is at Calgary). The annual membership fee is $2 and the fee for registration is $60. Licences to practise are also issued to women.

British Columbia.—No person may practise medicine, surgery, or midwifery in British Columbia unless registered by the College of Physicians and Surgeons of British Columbia. The Council admits to the register any person "who shall produce from any college or school of medicine and surgery, requiring a four years' course of study, a diploma of qualification," on proof of identification and on passing an examination as to his competency. The fee for registration appears to be rather indefinite, as we learn that it "must not exceed $100" and the annual fee is from $2.50 to $10. Licences to practise are issued to women.

AUSTRALIA.

Legally qualified British medical men can practise in all parts of Australia. Proof of registration by the General Medical Council of Great Britain must be submitted to the medical board of the particular State selected when a certificate to practise is granted. The medical man with British qualifications who desires to practise in Australia must communicate with the medical board as soon as he intends to settle, so that he may regularise his position from the beginning.

NEW ZEALAND.

Registration in the colony of New Zealand is obtained by the legally qualified British practitioner on producing his proof of registration by the General Medical Council of Great Britain and on paying a fee of £1 5s.

BRITISH SOUTH AFRICA.

The position of the legally qualified British practitioner in

South Africa is much the same whichever colony he proposes to practise in.

Cape Colony.—No person may practise in Cape Colony as a medical practitioner without a licence signed by the Colonial Secretary of the province and the recommendation of the Colonial Medical Council is required. The fee for the licence is £5 and women are eligible for the licence. Applications should be made to the Colonial Medical Council at Cape Town.

Natal.—Here also application for a licence to practise medicine in the colony must be made to the Colonial Secretary of the province. The application will be granted upon the approval of the Natal Medical Council and the fee for registration in Natal is one guinea.

Southern Rhodesia.—The admission fee for the practice of medicine in Rhodesia is £5 and application for the licence should be made to the Administrator of Rhodesia at Salisbury, Rhodesia. It would be well also to write to the Secretary of the British South Africa Company, London Wall, E.C.

Transvaal and the Orange River Colony.—The Transvaal Medical Council (Pretoria) and the Medical and Pharmacy Council of the Orange River Colony, Bloemfontein, grant a licence to practise on payment of £10 and £7 10*s.* respectively. Proof of registration by the General Medical Council of Great Britain must be supplied.

THE COLONIAL MEDICAL SERVICE

In the following countries there are medical departments regulated from the Colonial Office:—British Guiana, Jamaica, Trinidad, Tobago, Windward and Leeward Islands, British Honduras, Fiji, Ceylon, Straits Settlements, Federated Malay Straits, Hong-Kong, Mauritius, Seychelles, Gibraltar, St. Helena, Falkland Islands, Gambia, Sierra Leone, Uganda, the Gold Coast, Lagos, and Northern and Southern Nigeria. The last six of the countries enumerated have been formed into the West African Medical Staff, a definite and well-organised service. The particulars of the Colonial Medical Service were published in full in THE LANCET, April 29th, 1905, p. 1151, and all information concerning any vacancies in the service can be obtained from the Colonial Office.

THE IMPORTANCE OF VITAL STATISTICS.

WE have on a previous occasion pointed out that it would be greatly to the advantage of the medical profession and the public if our practitioners enjoyed a more intimate acquaintance with such of the methods of statistics as are appropriate for medical purposes. We do not for a moment propose to oppress further the already overburdened medical aspirant by requiring him to master the intricaces of the integral or differential calculus. The construction of life tables could scarcely have been perfected without the help of higher mathematics, but the necessary calculations have already been elaborately worked out by the late Dr. Farr, the acknowledged founder of the science of vital statistics, and Dr. T. E. Hayward of St. Helens has recently published detailed instructions, with mathematical formulæ, for the compilation of shortened life tables. With the aid of these a medical officer of health of average ability may readily construct a life table for his own district. A fair working acquaintance with ordinary arithmetic and algebra, and especially with logarithmic calculations, will furnish the medical student with most of the mathematical equipment that he is likely to need; but within these limits he should certainly be versed in the ordinary "technique" of vital statistics and should be familiar with the application of statistical methods to the solution of the everyday questions of preventive medicine.

Of text-books on vital statistics there is fortunately, no dearth. The well known manuals of Newsholme, Whitelegge, and Hamer, especially the first mentioned, will supply the student with the necessary instruction. But perhaps the most useful information within a moderate compass for the student of medicine will be found in the article on Medical Statistics included in the first volume of the new edition of Professor Allbutt's "System of Medicine." This article is contributed by a well-known authority on the subject, and as volume I. contains in addition useful essays by recognised experts in climatology and on the geography of disease it will be appreciated by the medical student as well as by the practitioner, both of whom need such information in a trustworthy and an assimilable form. The extent of statistical proficiency required for medical purposes is specified in each of the books just referred to, but for those who desire to pursue further the study of general statistical science the work of Mr. A. L. Bowley may confidently be recommended.[1] We would, however, utter a note of warning against indiscriminate reliance on so called "statistical statements" in the discussion of medical problems. It has been often contended against the use of numerical methods in questions of this kind that "anything may be proved by statistics." To this the obvious retort is that "without statistics you can prove nothing." It is not in the legitimate use, but in the abuse, of statistics that the real fault lies—in endeavouring to strain from mere collections of figures conclusions which they are not fitted to support. Mr. Bowley speaks of statistics as "the science of counting." "Counting," he says, "appears at first sight to be a very simple operation. But, as a matter of fact, when we come to large numbers—e.g., the population of the United Kingdom—counting is by no means easy ...... and in no way can absolute accuracy be attained when the numbers surpass certain limits. Great numbers are not counted correctly to a unit, they are *estimated*, and we might, perhaps, point to this as a division between arithmetic and statistics, that whereas arithmetic attains *exactness* statistics deal with *estimates*, sometimes very accurate but never mathematically exact. ...... Statistics is rightly defined as the science of averages. Out of a great number of men the *type* is found—the average, about which all measurements are grouped according to some definite law. The problem is, then, to determine whether the type or the grouping about it changes and in what way. ...... Great numbers and the averages resulting from them have great *inertia*. The total population, the total income, the birth and death-rates, *change very little*. Similar quantities relating to a single family change very fast. It is this constancy of great numbers that makes statistical measurements possible." Mr. Bowley then goes on to contrast statistics with arithmetic in the application of both to demography. "In a monograph a single family is studied: the occupation, the earnings of its members, the way these earnings are spent ...... are set down, but this study is not, so far, statistical. In demography we study the same quantities when groups of families are concerned; the number of families engaged in certain industries and their average receipts, expenditure, and savings —here we have statistics. In the monographic method the individual is everything; in the statistical method, nothing."

With respect, more especially, to statistics of mortality, it should be realised, *in limine*, that the individual facts with which we have to deal are by no means of uniform value. Take, for example, the returns of death from malignant disease. It is obvious that greater accuracy must attach to the diagnosis of, say, 100 cases of cancer in a hospital where the clinical diagnoses are tested by microscopical aid during life, or by post-mortem examination, than would attach to the diagnosis of the same number of cases occurring in country houses where necropsies are extremely rare. Again, as regards the ages at death, it is notorious that the registers are very untrustworthy. In many cases the ages of old people are unknown, and in all cases the statement of age in the registers is derived from the relatives of the deceased, who, for purposes of life insurance, are sometimes interested in concealing the truth. And it is to be feared that the published statistics of mortality are not infrequently vitiated by the act of the local authorities who, although prompt to exclude from their returns the deaths of strangers occurring within their domains, show no corresponding anxiety to include the deaths of their own residents should they occur outside the district boundaries. We need not go further into the various advantages attending a study of right statistical methods, or detail other openings for statistical fallacies; we will conclude by conveying to our readers the assurance that the acquisition of the power to understand arguments drawn from figures can only be fully attained by a certain amount of special work in the desired direction.

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[1] Elements of Statistics, by A. L. Bowley. P. S. King and Son.

LITERARY INTELLIGENCE.—A new volume for students will be published on Sept. 5th by Messrs. J. and A. Churchill entitled "A Short Practice of Medicine," the author being Dr. R. A. Fleming, lecturer on the principles and practice of medicine at the Edinburgh Medical School. The volume is a large one, as the work is intended to be comprehensive, and some of the illustrations will be in colour. A large sale is evidently expected, as the moderate price of 10*s.* 6*d.* will be asked.

OUR CURRENT NUMBER

Being almost exclusively devoted to information especially interesting to Students we are necessarily compelled to defer the publication of communications on other important subjects.

We tender our best thanks to those gentlemen who have at considerable personal trouble kindly supplied us with the returns and prospectuses upon which the information given in this Students' Number of THE LANCET *relative to the various medical examining bodies, hospitals, and medical schools of the United Kingdom is based. We regret that in some cases, however, owing to proofs having been either not returned at all or too late, certain inaccuracies may be found.*

TO ADVERTISERS.

Owing to the pressure on our advertisement columns this week some announcements have unavoidably been held over.

Communications, Letters, &c., have been received from—

A.—Dr. B. Anningson, Cambridge; Messrs. Arnold and Sons, Lond.

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E.—East Suffolk Hospital, Ipswich; Eccles and Patricroft Hospital, Secretary of.

F.—Mr. G. Fingerhut, Lond.; Messrs. Ferris and Co., Bristol; Mr. J. FitzGerald, Queenstown; Messrs. Folkard and Hayward, Lond.; Messrs. Foster, Brown, and Co., Montreal; Mrs. Fryer, Lond.

G.—Mr. R. Groves, Lond.; Glasgow Eye Infirmary, Secretary of.

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J.—Mr. W. Judd, Lond.; Messrs. W. and A. K. Johnston, Edinburgh.

K.—Dr. Arthur Keith, Bredgar; Mr. R. C. B. Kerin, Bourne End.

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Letters, each with enclosure, are also acknowledged from—

A.—Mr. F. N. Allen, Crookes; A. P. A. E.; A. G.; Aberdeen City District Lunacy Board, Secretary of; Ashton-under-Lyne District Infirmary, Secretary of; Messrs. Armour and Co., Lond.

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P.—Mr. C. M. Perry, Leatherhead; Dr. W. P. Panckridge, Petersfield; Miss Perkins, Lond.; Plymouth Borough Asylum, Blackadon, Secretary of.

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Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris.

Presidential Address

ON

THE EVOLUTION OF INSANITY.

Delivered before the Medico-Psychological Association of Great Britain and Ireland at the Sixty fifth Annual Meeting, held in London on July 26th, 1906,

BY ROBERT JONES, M.D. LOND.,

RESIDENT PHYSICIAN AND SUPERINTENDENT, LONDON COUNTY ASYLUM, CLAYBURY.

[Dr. Jones in his introductory remarks, after thanking the association for his election to the position of president, said that each president who had occupied the chair annually during the last 20 years in succession was still living. (Dr. Oscar T. Woods, who was president in 1901, has, however, died since the delivery of Dr. Jones's address.) In his references to the history of insanity in ancient times he mentioned early Egyptian allusions, the Biblical accounts of Saul, David, and Nebuchadnezzar, and mediæval views with regard to demoniacal possession. He said that during the Middle Ages over 100,000 persons were stated to have been put to death for witchcraft and sorcery, of whom about one-third were lunatics. He then spoke of the mediæval treatment of the insane in Great Britain by various herbal remedies, holy water, and holy wells, such as those of St. Winifred in Wales, of St. Maree in Ross-shire, Great Nun's Pool, St. Fillan's in Perthshire, and St. Ronan's near the Butt of Lewis. He then continued as follows:—]

I have selected as my subject the Evolution of Insanity, or more exactly the evolution of our conception of it, both as regards the special forms of mental disorder and the evolution also of their general treatment. It is not a little remarkable that whereas in former times various restraints and penalties were applied to the patient it is now the physician who is threatened with penal clauses and surrounded with restrictions. He has no power to treat under his own roof for payment any case in the early uncertified stage of incipient mental disease, the stage when treatment is most likely to be successful. If he receives such a patient—even his own brother or other relative—to board and lodge with him he is guilty of a misdemeanour and is liable to be fined £50. He is not permitted to receive any case of insanity unless certified and if he receives two or more patients, although they may be certified, he is again liable to be charged with misdemeanour. Moreover, if he has himself certified any patient to be insane he is debarred in consequence from applying to that patient his own counsel and treatment. In mentioning these particulars I am merely stating what the law is and am not suggesting that these restrictions are all of them improper.

The first custodial institution for the care of the insane was founded in Florence in 1389 and this was followed in 1403 in our own country by the establishment of "Bethlem"; subsequently in 1660 the Hôtel Dieu in Paris was opened and in 1737 an institution was established in Pennsylvania. Shakespeare makes frequent reference to insanity and during the two centuries which elapsed from his death until 1815, when an inquiry was held before a committee of the House of Commons, the treatment of the insane was accompanied by flagellation, torture, confinement in dark rooms, and acute suffering, often until death released them. The insane were tied to crosses or to pillars in churches, they were flogged at "trees of truth," and they were burnt at the stake as sorcerers. They were fastened in chains, strapped in covered cribs, and confined in wristlets and strait jackets even in our own country so late as the year 1841. The harsh measures of the eighteenth and early nineteenth century included also severe and unsympathetic medical treatment, such as blood-letting in the standing, recumbent, or sitting posture; active counter-irritants; drastic purgatives; the shower bath; emetics; and heroic doses of tartarised antimony, of mercury, and of digitalis. These have now given way to hygienic measures, exercise, and suitable medicinal and moral treatment of which congenial occupation and amusement form especial features.

It was only during the nineteenth century that lunatic asylums underwent the metamorphosis which has resulted in their present excellent condition. As a contrast to the gaols, shrines, holy wells, chains, tortures, and exorcism, we have to-day suggestions for the care and cure of early cases of insanity by "reception houses," and we already have well-planned and furnished hospitals for the acutely insane, others for the chronic insane, asylums for the criminally insane, institutions for inebriates or chronic drunkards and for the feeble-minded, and finally we have colonies for the epileptic.

Previously to the Gordon Ashley Act of 1828 there were but few legal enactments dealing with the care of the insane, those existing at this time dating back only to the second or third year of the reign of William IV., although the Lunacy Commissioners inform me that statistics may be traced as far back as the reign of Edward II. Prior to 1828 the Royal College of Physicians of London, represented by five of its Fellows, had the supervision and licensing of asylums in London and Westminster within a radius of seven miles, whilst the county justices of Middlesex and other counties acted for the provinces, a supervision which was not to the advantage of the insane. In the year referred to the number was augmented to 15 Fellows of the College and in 1832 this body was styled the Metropolitan Commissioners in Lunacy. In 1842 they were accorded the duty of visiting the public asylums of England and Wales and the whole of their report for this year extended to only one and a half pages. In 1845 the present board of 11 Commissioners in Lunacy was appointed, five of whom are honorary. It was not until Jan. 1st, 1859, that the number of lunatics was officially registered in this country. At that date there were 36,762 insane persons, a proportion of 1 to every 536 of the population. The number of registered insane persons in England and Wales when the Lunacy Commissioners were first appointed was 11,272, there being then only 15 county asylums. Last year (1905) there were 119,822 and a total of 88 asylums. The report of the Lunacy Commissioners has also grown from a page and a half to a volume of over 500 pages. This record would not be complete without some allusion to the more recent legislation for the idiot and imbecile. Up to 1847 no separate provision existed for this class, but Dr. Andrew Reed—a philanthropic divine—began to interest himself in this class and subsequently founded the Earlswood Asylum, from which as a pioneer sprang several other most deserving and useful charities. In 1886 an Act was passed permitting backward children to be placed in such institutions upon one medical certificate, merely stating that such a course would benefit the child, so that it is now no longer necessary to certify these backward children as "lunatics." We have further for children less afflicted the Epileptics and Defective Children's Act of 1899, making it permissible for public authorities to provide suitable educational faculties for this class. The number of mentally and physically defective children on the roll and actually attending the special schools for London has been kindly given to me by Dr. James Kerr and they are as follows: "Average attendance at elementary schools is 666,757 and at the special schools 5831 (mentally defective 4522, physically defective 1309). The full roll is 757,084 and 6952 respectively (mentally defective 5311, physically 1641), giving an average of almost 1 per cent. of defective children attending the special schools in London alone." Dr. Kerr further states "that there are probably as many more children mentally and physically defective who are not so classed."

Now many of the vagrants, ne'er-do-wells, profligates, and immoral persons, criminals and lunatics, are recruited from these classes, and in my own experience cases are received into asylums from prisons who have in infancy attended hospitals and charities as mentally and physically defective. If the stock is to be kept free from taint a proper supervision should be kept over this class. In country districts they are more definitely known and a certain amount of "communal vigilance" is exercised over them, but in towns this is obviously impossible, and it should become the duty of the State so to register them by special notification through the schools as to direct and control their lives and to see that adequate care is exercised over their destinies in specially adapted schools, homes, colonies, or settlements. Such a regard would tend to lessen the necessity for increased asylum accommodation; but to this we shall refer later.

Among the various contributory factors to the changes in the treatment of the insane, one is the recognition of mental diseases as an integral part of disorders of the nervous system and not a fragment detached as it were from the domain of general medicine. Possibly also the mental infirmity of King George III. gave an impetus to the more enlightened treatment of mental diseases, which even long after this period continued to be a reproach. The fact that all institutions for the care of the insane are carefully inspected by Government officials of recognised professional ability and rank in law and medicine, whose reports are made public, has had a great effect upon the care of the insane, as also the fact that they are for the most part supervised by unsalaried boards of trustees representing charities or by managers and visitors elected by the people; and I think we may legitimately claim the further fact that institutions for the insane are served by responsible medical authorities who link their reputations with those of the institutions they serve and to which they devote their time with loyal energy and fervour.

There is in consequence of the above reasons more confidence on the part of the public who are now ready to send into these institutions all mentally infirm persons from whatever cause; more especially do we now find old people admitted who are suffering from the decay of nature and whose friends no longer have the necessary time, the accommodation, or the means to supervise them—cases which in the circumstances of the past would have been retained by their relatives in their own homes. Upon this point, going back to 1859, we find that 56 per cent. of all pauper lunatics were in asylums, the rest being in workhouses or with their friends. In 1905 over 78 per cent. were in asylums, showing among other causes that probably the capitation grant of 1874 may have had the effect of sending into asylums a large number of chronic and incurable patients formerly detained in workhouses and kindred institutions. Most of these cases, in spite of their transference in a state of senility and infirmity, owing to their improved sanitary surroundings live longer and therefore tend to accumulate in our asylums. Added to these senile cases there is an increasing number of young people who being mentally defective (and this defect is now recognised by law) are, whilst children, looked after and cared for at home and in special schools, but as adolescence approaches and they begin to give trouble they are brought into our asylums. Most of these cases, owing to the very nature of their affliction, are incurable from the start and they help to form the chronic remainder of hopeless cases. There is no doubt that this burden of the incurable insane is growing fast and that fresh accommodation is constantly being called for.

Surely the voice of our association should be clamant as to some remedies when more than 1 in every 285 of our population is an inmate of an asylum and when there are already over 120,000 certified insane persons in England and Wales; when, moreover, there is an equal number of potential lunatics, those not known to us by certification—namely, weak-minded and neurotic persons out of whom lunatics are recruited owing to a vicious inheritance or to a wretchedly sordid environment. Furthermore, the pauper roll has latterly been a growing one, as is shown by the report of the Local Government Board on poor relief in England and Wales during the half year ending Michaelmas, 1905, which exhibits the steady increase of the cost of pauperism, particularly in London, an increase on the corresponding half year of 3·1 per cent. for England and Wales. It was stated that during the year 1900 in the United Kingdom 1,882,000 persons sought poor relief and of these about half a million were over 65 years of age. On Jan. 1st, 1905, there were 932,267 pauper persons in England and Wales, an increase of 63,139 compared with the previous year. This is equal to about 1 in 37 persons, or 2·7 per cent. of the whole population of England and Wales, being a pauper person dependent upon the earnings of others. My own country (Wales) is the most distressful in the three kingdoms in this respect, having an average of 3·11 per cent. of the total population who are paupers, Scotland with customary superiority having the least number. The total cost of relief to the poor during the year ended Lady Day, 1904, for England and Wales was £13,353,656, an increase upon the previous year of £405 333 The latest information from the Local Government Board department shows that £36,264,702 were spent upon pauper lunacy from 1880 to 1904 inclusive. The result of the last two census returns also shows that whereas in 1880 there were only 65,345 pauper lunatics in England and Wales, in 1905 there were 109,100—an increase of 49 per cent., whilst the population during the same period has only increased 25 per cent. In the quinquennium 1880–84 inclusive the annual average expenditure upon intoxicating liquor in the United Kingdom was £143,799,641; in the quinquennium 1900–04 it was an annual average of £177,920,339—an increase of 24 per cent., whereas the population of the United Kingdom has increased by only 19 per cent.

With regard to the causation of insanity we know that heredity plays a most potent part. A history of insanity in the ancestors determines a tendency to this in the descendants. We also know that the spread of venereal disease is responsible for increasing certain forms of insanity which are of a most hopeless character as to recovery and that over-stimulation in many directions induced by modern social conditions contributes to insanity. Intemperance in the use of alcohol is well known to be a contributory factor and statistics collected from many sources and for a long term of years present an almost unchanged average incidence of insanity through alcohol. An average of 22 per cent. of men and of 10 per cent. of women who are insane in the county of London owe their insanity to alcoholic excess.

Attention may be specially called here to the diminishing birth-rate as further evidence of the love of selfish pleasure and the shunning of parental responsibility incident upon so-called progress, and not only is there a diminishing birth-rate but unconnected with this marriages are contracted later. In 1901 the birth-rate for England and Wales was 28·5 per 1000 living, then the lowest rate since the civil register was established, and 1·4 per 1000 below the mean rate in the ten years immediately preceding. In 1905 this had further fallen to 27·6, whilst for London the rate had fallen to 27·1 per 1000. This rate has been declining for many years but never before 1898 had it fallen below 30 per 1000. Civilisation means the association of men and women in towns which only the rich can circumvent, wealth enabling this class to live out of the towns. City life means artificial desires and their gratification, but civilisation also implies progress which proceeds at the expense of the less fit—a higher standard is fixed and those who are unable to attain it are left behind to sink lower and lower. The population of the convict and local prisons shows an increase in 1905 of 9447 persons as compared with the previous year.

I do not think that I am called upon to notice the asseverations of angry pamphleteers in the public press. When, however, a journal of the reputation of the *Times* (April 14th and 21st *et seq.*) takes up this question it is bound to arouse attention. The growth of insanity is undeniably a matter of considerable public importance and few subjects have of late more employed the pen of every class of critic than the legal, curative, custodial, and even the preventive aspects of insanity. Overdrawn and unjust statements have been made in the *Times* that the insane to-day are under the care of officials who have neither received the necessary training for conducting scientific investigations nor have the inclination to pursue them. Medical officers of asylums are stated to be physicians only in name, for they neither devote thought nor time to professional work. The asylum service is held up as a scarcely conceivable career for a young man of promise or for a person of real capacity. Moreover, it is stated to be a service which has practically excluded insanity from the area of scientific investigation. In short, asylum medical officers are in these articles actually held responsible for the accumulation of incurable insanity in our asylums, a state of things which implies a grievous burden upon the community. It is then suggested that a special hospital would render unnecessary "the provision of a constantly increasing number of huge buildings for the life-long incarceration of thousands of men and women who are now annually suffered to drift into hopeless incurability" and who accumulate *ex hypothesi* from the failure of asylum physicians to cure them.

Now if these statements are true and if the reduction of the blot and burden of insanity can be thus relieved I am able from this presidential chair and with the unanimous voice of this association to promise the scheme our most cordial support, but although I should welcome the continuous and direct assistance of hospital physicians in our work I feel that they can no more prevent the occurrence of incurable insanity than they can prevent the filling up of cemeteries. It may be recalled that Sir William Gull over 40 years ago was medical superintendent of the insane wards of Guy's Hospital. He had charge of the insane cases in that hospital and had the advantage in their treatment of the services of the medical officer hospital physicians and surgeons. Yet what happened? The Lunacy Commissioners considered that the patients were less favourably placed there than those who were in asylums, and the hospital authorities, *in the interests of the insane*, were compelled to close the wards. Is the treatment of insanity in this country to-day the shame and reproach which our critic asserts? I venture to think these statements are not only inaccurate but they are also detrimental to the position we claim to hold in the larger medical world outside our asylums and I purpose very briefly to refer to this aspect.

[Dr. Jones here discussed in some detail questions of medical treatment in asylums as well as recovery-rates and death-rates at various times and places. He then continued as follows:]

Having analysed the recovery-rate and noticed its fall within recent years let us now compare the varieties of insanity as they are known to-day with those of which we had knowledge a century ago. Of these epilepsy appears to have undergone but little change and remains intractable in regard to cure. General paralysis, on the other hand, has become more common. John Haslam early in the last century was the first to describe this disease, although Esquirol had already noted the extreme gravity of those cases in which dementia was complicated with paralysis. Dr. T. S. Clouston refers to deaths among women from this disease during an experience of over 30 years. In the first decade of his experience 7·5 per cent. of the deaths among women under his care were from this disease, in the second the percentage had risen to 9·7 per cent., and in the third decade to 12 per cent., whilst in the following year (1904) the deaths from general paralysis among women had risen to 23·5 per cent. In my own experience for 1905 at Claybury a proportion of 36·5 per cent. of the total deaths were from general paralysis of the insane. The time of onset of general paralysis after syphilitic infection appears also to be shorter than formerly. In a recent average the period is given as about ten years, whereas past records give an average of 15 years, a fact which tends to show one of two things—namely, either a diminished resistance of the individual to the effects of competition or an increased "stress" through the conditions of modern life in which the stimuli are both more numerous and more complicated. It is certainly not syphilis alone which is the cause of general paralysis, for in the insane population of the Straits Settlements Dr. W. G. Ellis, a competent observer, states that general paralysis is exceptional there, although syphilis is rampant; probably the Malay race has not reached the stage of evolution in civilisation at which "stress" is felt. It is further asserted by those in a position to form a judgment (and Sir Alfred Cooper is of this opinion) that syphilis is not more common to-day than it was a century ago, although general paralysis appears to be on the increase.

Dementia præcox seems formerly to have been rare but it is now so common that it attacks prematurely our most promising and educated youth, the brain worker rather than the manual labourer, young men rather than women, and it is a disease so incurable that it tends to fill our asylums with hopelessly insane patients. Haslam refers to it as "a species of insanity sometimes occurring about the time of puberty, especially in those who have possessed a good capacity, a lively disposition, and in females more than in males. Their faculties are gradually obliterated until they are at last complete and incurable idiots." Although premature dementia, as such, is not referred to in the Lunacy Commissioners' report, the statistics for the last quarter of a century support the assertion that it is more common than formerly. These cases almost invariably commence in depression and it is justifiable to conclude that they were classed as melancholia, which has risen from 21·5 per cent. of the total admissions in 1678 to 31·2 per cent. in 1904. Cases of mania, on the other hand, have diminished from 53·8 per cent. of the total admissions in 1878 to 40·3 per cent. in 1904. Senile insanity, which shows the wreckage due to long-continued stress, has apparently undergone a remarkable increase, partly due, it is acknowledged, to increased registration. In some districts senile, or I would prefer to call it pre-senile, insanity has increased from 11 to 20 per cent. of the total admitted into asylums within the last 16 years and the evidence given by Sir John MacDougall before the Commission on the Feeble-minded confirms the increase in this form. The congenital varieties of mental deficiency show but little increase according to asylum statistics. These are teratological variations not controlled by any natural laws and they make themselves apparent by arrest of development often accompanied by physical stigmata. These varieties, which exist in every country and among every race, are the least reflection upon civilisation. They occur among the lower animals and are familiar to all observers of comparative natural history.

[Dr. Jones here mentioned some views held in the eighteenth century as to the causation of insanity and expressed sympathy with the advocates of "Eugenics." He then proceeded as follows:]

The highest function of medical science is the prevention of disease—i.e., the adoption of special measures which are known through experience to be protective against injurious influences; and of all known diseases there is not one in which there is either a greater need of prevention or one which permits of more effectual limitation by precautionary measures when taken in the early stages than insanity. Hence we need statutory authority to treat incipient insanity as other diseases are treated—namely, with full freedom to the physician *and proper and adequate safeguards* for the interests of the patient. Such means would prove to be a most valuable auxiliary towards prevention. I am of opinion that those who undertake the care of the insane in the incipient stages should be especially sanctioned by recognised authority so to do; but I do not believe in public bodies undertaking the care of cases making high payment, as this can be better done by private enterprise and without the "red tape" so dear to public authorities. This suggested limitation of municipal accommodation for private patients is clearly acknowledged by Mr. P. M. Martineau in the first report of the London County Council Asylums Committee for Claybury in 1893, when he described it as an effort of the London County Council "to provide for a class of patients above the pauper class, but who can ill afford to bear the cost of a private asylum, and who may find comparative quiet and comfort—perhaps even a touch of 'home'—in such an institution as the Claybury mansion house." In regard to insanity as in other diseases the neglect of ordinary hygienic rules and the failure to observe natural laws are inevitably and remorsely punished. Nature is a good friend but a bad enemy, for she never forgives a wrong, and she is again wholly selfish—perhaps, more correctly, wholly just—for she invariably decides the race to the swift and the battle to the strong. It is in the observance of a proper health code and by an adherence to temperance in all things that insanity can best be prevented. If only the evils of alcohol and venereal disease were disposed of then half the problem of insanity would disappear with them. Many suggestions on the lines of reclamation, education, and restriction have been made for fighting intemperance, but hitherto they have not been distinguished for their wisdom or practical statesmanship. As a medical association we should carefully consider in what way we can best assist towards restricting drink and drunkenness and I for one welcome the attempts of the National Temperance Legislation League (of which Viscount Peel is the President and Sir Thomas Whittaker the chairman of executive) to bring its views before the country and the legislature with the object of promoting sobriety in such ways as local conditions and public opinion may render possible.

We accept the statement that society is bound to provide for and to support its own languishing sick and feeble, but when 1 in every 285 persons of the population is an inmate of a lunatic asylum, when 1 in every 157 during the year 1905 has undergone a term of imprisonment for offences against the law, when 1 in every 100 children of elementary school age is so mentally or physically defective as to require special educational facilities, and further, when 1 in every 36 persons in England and Wales and 1 in every 31 in London is a pauper, it is surely time that some stir were made. The whole of this so-called "defective class" have a right to be *protected* against themselves and the control which they lack should be supplied to them from without; at the same time society has a right to be protected from the transmission of their defective qualities to future generations. I have no sympathy with the crude and barbarous mutilations proposed by indiscreet and fanatical persons who are devoid of any quality of sympathy or patience necessary to enlightened reform.

It appears to me to be necessary to subdivide and classify the whole of the defective classes and if possible to bring them all under one great department of State, so that in youth they may be specially notified and registered, in adolescence be strictly observed, and in maturer years those of them still supervised who have not succeeded in taking their place in the community as contributors to its welfare, and in this way *they would* be *saved from a life of* crime, vice, or any of the forms of pauperism. So much may be involved in this suggestion that it may well form the basis of inquiry and investigation by another Royal Commission. I am of opinion that insanity, which of all illnesses inspires terror beyond *any other and causes a sense of* helplessness, might be lessened if the hospitals of *our* cities (whether associated with a medical school or not) were to initiate outpatient departments where *patients could apply for advice* and submit to treatment for mental symptoms without loss of *liberty. Where this experiment has been tried* it has proved *most satisfactory.* Moreover, our public asylums, built and *supported by the ratepayers, should give them some relief and benefit in return. They* should be the centres for disseminating, *through their medical officers* and nurses as missioners, a *health conscience* and a creed which should reform the districts they serve. Each of our asylums should be a centre for *clinical* instruction. It should be a school where any qualified medical practitioner could refresh his knowledge ot the subject of insanity in all its bearings and where the medical staff should give advice to any applicant *suffering from premonitory symptoms* of incipient insanity, and power should be given by law to take such cases in for treatment if necessary as *voluntary boarders.* An asylum should be the place where the principles of Eugenics should be widely disseminated, for surely it is wiser and better to make every effort to arrest insanity before it has reached the stage of certificates than to wait until it has been legally established. Every *facility should be given by public bodies* for students and medical men to receive full and adequate clinical and systematic instruction in insanity and there should be a diploma in mental diseases granted by the Royal Colleges of Physicians and Surgeons which should be a qualification necessary before any *medical* officer *can* receive the higher appointments in public asylums, just as the *diploma of* D.P.H. *is* necessary *for medical officers* of health. The University of London has already taken a step in this direction by the recognition of mental diseases as a special subject for the M.D. examination and the further question of a diploma is worthy the attention of the University authorities.

[Dr. Jones here referred to the teaching of hygiene and temperance in elementary schools, to the after-care and boarding-out of the insane, and to the probable influence of old-age pensions in *reducing* the number *of* aged *persons in* asylums. He continued as follows :]

May I ask in conclusion what our great national association is doing and has done in the direction of mitigating insanity. Our association has risen, owing to the vigilance and faithful care of our treasurer, to be, so far as financial position and annual income are concerned, the second of the medical societies of this country. Founded in 1841 with a membership of 44, it can now boast of a roll of over 700 qualified *medical men and women* interested *in the improved* treatment of the insane. Such membership must be a bond of union to all *asylum workers and this bond is* greatly strengthened by our representative journal, so ably conducted under the experienced editorship of Dr. H. Rayner, Dr. Conolly Norman, Dr. A. R. Urquhart, and Dr. J. Chambers. With the view of encouraging investigation and research *our* society continues to hold an examination in mental medicine for qualified medical practitioners engaged *in the asylum services* and *a certificate* is granted by the association as a mark of proficiency, and I consider this encouragement and *the continuance* of this examination to be imperative upon us until such time as the universities and conjoint medical *colleges* take the matter up. This year six candidates have been successful in obtaining this certificate. A medal with an honorarium of ten guineas is also *offered annually* for an essay by any assistant medical officer upon a subject connected with the clinical study of mental diseases and *two essays* of remarkably ability have recently been presented, one *dealing* with the special pathology of insanity, the other dealing with the incidence of tubercle. Further, a prize of £30 and a gold medal are also open to assistant medical officers as an incentive *to the study* of insanity and both are this year awarded. *The* improvement of nursing in our asylums and mental hospitals has always been an object of *much solicitude* and of considerable interest to the *council* of our association. Didactic instruction in the form of lectures to the staff by the asylum medical officers, *according to* a syllabus laid down by the *association, has become the almost invariable* rule in asylums throughout the three kingdoms as well as those of some of our *colonies. The period of training* for the certificate of the association *for proficiency in* mental nursing now extends *to* three years and such training enables the holders to obtain *better executive positions in various institutions* as well as in private nursing, and by ensuring better prospects encourages *a more* ambitious and a better class of nurses. The records kept by our energetic and methodical registrar, Dr. *Alfred Miller*, show that there are at present no *less* than *7555* persons—*3549 men and 4006* women—who have obtained the certificate for proficiency in mental nursing, and *I think the least* we can expect *for* those who *thus* devote themselves to duties which, were they not essentially Christian *in the highest sense* of the term, would be positively repellent *is that with regard to their* later days they should at least be placed in such ease and comfort as to old-age provision as the ordinary policeman. More we do not ask, and I am happy to think public opinion is now maturing towards the view that they deserve as much.

During the past year we have had a special committee, under the *chairmanship of Dr. R. Percy Smith,* to consider the classification of insanity. This committee in the light of our present knowledge of psychology, pathology, and symptomatology has discussed the matter very fully and has endeavoured *intelligently* and practically to subdivide the whole of mental diseases, to rearrange them, and thereupon to suggest a nomenclature which, if not final, is at any rate a workable scheme *in* harmony with the united opinions of members of the committee and based upon psychological and pathological *knowledge as they fit in with the* various symptoms presented. This year also witnessed the final presentation of a scheme of statistical tables, which to *be of* any use for the collation of our knowledge and for general information in respect to insanity requires the loyal coöperation of every member of our association. The committee, with Dr. D. Yellowlees as chairman, deserves the very grateful *thanks of* the whole association for the *years of* elaborate and consistent devotion to this task.

In conclusion, I would suggest that an annual lectureship be endowed by our prosperous association dealing with insanity in its sociological aspect, for the more we work into these side issues the more do we *feel that the life of* intellect, of emotion, of action, of thought, and even of pleasure have effects which command our earnest attention. The whole question of insanity demonstrates what a great *thing life is,* and that there is *no* aspect of it unworthy *of* study or destitute of interest.

A Lecture

ON

EPIDEMIC CEREBRO-SPINAL FEVER, WITH ILLUSTRATIVE CASES.

Delivered in the Glasgow Royal Infirmary

BY JOHN LINDSAY STEVEN, M.D. GLASG.,
PHYSICIAN AND LECTURER ON CLINICAL MEDICINE, GLASGOW ROYAL INFIRMARY; HONORARY LIBRARIAN, FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW; AND REPRESENTATIVE OF THE FACULTY ON THE GENERAL MEDICAL COUNCIL.

GENTLEMEN,—*During the past* few months a number of cases presenting the features of epidemic cerebro spinal fever or meningitis have occurred in *Glasgow. A memorandum on the* subject for the *consideration* of the health *committee has been prepared by* Dr. A. K. Chalmers, medical officer of health of the city. Extracts *from* this *memorandum* were published in the daily papers on June 23rd last giving a *statement* of the facts as regards the number of cases, ages of the patients attacked, &c., so far as then known to the health authorities.[1] From March 10th, 1906, till that date *information* had been obtained of *44 cases, 32 being under* the age of 15 years and 30 of the patients having died. On June 7th, when I had an interview with Dr. Chalmers concerning the patient who died in Ward 12, and whose case during our ward visits I demonstrated to you as a characteristic example of epidemic cerebro-spinal meningitis, he courteously informed me that on that day they had information of 29 cases of which 20 had terminated fatally; Weichselbaum's diplococcus intracellularis had been demonstrated in eight or nine of them; and of five post-mortem examinations which had been made revealed the anatomical changes of cerebro-spinal meningitis, although only four yielded the diplococcus from the meningeal exudate, the fifth having been associated with the staphylococcus and being clearly of septic origin.

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[1] *This statement* has also been published in THE LANCET and British Medical Journal of June 30th, 1906. In THE LANCET of the same date a paper dealing with the first ten cases of the epidemic, by Dr. William Wright and Dr. W. Archibald, assistant medical officers of health of Glasgow, was published.

I think the credit of first directing attention to the probable presence of a disease resembling epidemic cerebro-spinal meningitis among the children of the city must be given to Dr. J. W. Anderson of Dennistoun who during 1905 asked me to see one of his cases in an infant, about a year old, in whom the retraction of the head and Kernig's sign were well marked but in whom no bacteriological examination was made. At Dr. Anderson's request I drew up a short report stating my opinion that the child was suffering from cerebro-spinal meningitis, which he submitted to Dr. Chalmers. In his memorandum Dr. Chalmers writes as follows: "During 1905 I had, through the courtesy of Dr. Wallace Anderson of Dennistoun, repeated opportunity of seeing with him several isolated cases of meningitis of a type which he considers to have been present since 1901. No suggestion of grouping, however, occurred nor were there any in which the organism was recovered until the following incidents arrested attention." Dr. Chalmers then goes on to refer in detail to the cases which occurred on and after March 10th, 1906, in many of which Weichselbaum's diplococcus was recovered. Dr. C. Workman informs me that in the post-mortem journals of the Glasgow Royal Infirmary since that date five cases have been recorded all affecting adults: in three cases, Weichselbaum's diplococcus; in one case, the pneumococcus; and in one case, no report. These are the chief facts that have been elicited by the health authorities of the city, and they are of such importance as fully to justify the most scrupulous investigation of all cases of meningitis both by the municipality and by individual medical men.[1]

During the present outbreak of the disease in the city I have had the opportunity of seeing three characteristic cases, one of which you have also watched in the wards and followed to the post-mortem room. The other two I saw in private. It is fitting, therefore, that at this the last meeting of the class for the present summer session I should describe to you the clinical features of these three cases in the course of a formal lecture on this interesting and fatal disease.

CASE 1.—A man, aged 21 years, married, a labourer, was admitted to Ward 12 on May 30th, 1906, at 7 P.M. on account of vomiting, headache, great restlessness, and unconsciousness. Since childhood, with the exception of whooping-cough, measles, and scarlet fever, he had no illness until eight months before admission, when he was away from his work for a week on account of an attack of "black bile," accompanied by vomiting but without unconsciousness. On the evening of May 29th he was suddenly seized with severe sickness and vomiting which lasted continuously for five hours. There was also some diarrhœa and he complained of tenderness and pain in the region of the stomach. The colour of the vomited matter was green at first, but afterwards became black. This attack came on suddenly after he had taken his supper consisting of tea and sausages. Before having his supper he had been in a friend's house, where he drank some whisky out of a bottle. The violence of his illness suggested to his friends that the contents of the bottle might not have been whisky but something poisonous; on inquiry, however, it was found that the bottle had contained whisky. On the morning of the 30th headache was so intense that he could not get out of bed. At 2 P.M. on that day he became unconscious and extremely restless, moving his arms and legs about in an irregular fashion. At 7 P.M. in this condition he was admitted to Ward 12. His mother stated that he had been out of work for about a fortnight, but had not been particularly depressed on that account. He lived at home in a room and kitchen house with his father and mother, both of whom were healthy; his brothers and sisters numbered seven and all were in good health; two others had died in infancy, one from croup, the other from "inflammation of the brain." He was married and had one child, who had died in the Hospital for Sick Children from tuberculous meningitis as ascertained by post-mortem examination there.

On admission to the ward the patient was quite unconscious and extremely restless, so that it was necessary to procure a night-watchman to prevent his falling out of bed. The face was flushed and the tongue was coated with a white fur; the breath had a peculiar offensive odour. There were no herpes and no cough or spit. The pupils were equal and medium and reacted to light. No paralysis was anywhere noted. He frequently passed his hand over the abdomen, so as to suggest that he might be suffering pain in that region, but a careful examination of the abdominal walls, the inguinal rings, and the rectum revealed nothing abnormal. The stomach was washed out; the contents were greenish in colour and contained no free hydrochloric acid. The urine removed by catheter had the following characters: colour, amber; reaction, acid; albumin, present; sugar, present; chlorides, diminished; acetone and diacetic acid, absent. There was no œdema of any part of the limbs or trunk. Kernig's sign was absent. The pulse was 78, the temperature was 99° F., and the respirations were 28. Examination of the circulatory and respiratory systems was difficult on account of the restlessness and struggling, but so far as it could be carried out it pointed to a healthy state of the heart and lungs. Such is the clinical history as recorded by my resident assistant, Dr. McEwan; the subsequent notes of the case were dictated by myself in your presence when we examined him together.

On May 31st, in the morning, the patient was still unconscious and extremely restless, constantly moving the limbs and turning the body from side to side. The unconsciousness was not very deep, as any examination of the patient increased the restlessness. A distinct rigidity of the nuchal muscles was observed. This, indeed, was so great that he could be raised from the bed by the hand placed beneath the occiput, the spine being kept quite rigid during the whole time. Occasionally a slight tendency to opisthotonos was noted. The attempt to raise him in this way also caused him to cry out a little as if he were in pain or discomfort, but he never regained consciousness. The abdomen was markedly retracted and the tache cérébrale was well marked. The skin was of a somewhat oily character; here and there blotches and pimples were noticed but no definite specific rash could be detected. The pulse was of small volume, regular in force and rhythm, and numbered about 100. The respirations were irregular, there being an intermission of varying duration every third or fifth breath. The respirations numbered about 20, although they were somewhat difficult to count owing to the intermissions. The temperature had gone up from 99° on admission to 101° at 1 o'clock and 102° at 8 o'clock this morning. Occasionally a slight twitching of the right angle of the mouth and of the right eyelid was observed. It was impossible to test for Kernig's sign on account of the extreme restlessness. The patient was able to swallow when fluid was placed in the mouth, but the lower jaw was rigid. There had been no vomiting and no diarrhœa since admission. The restless movements sometimes ceased for a few minutes, during which the patient seemed to be asleep. At times during the restless periods he uttered a low moan as if he were in pain. No wound could be discovered on the body and the idea of the disease being tetanus was dismissed. The rigidity of the neck, the unconsciousness, the extreme muscular restlessness, the irregularity of the respirations, and the history of onset with violent vomiting and purging suggesting irritant poisoning on the whole indicated the possibility of cerebro-spinal meningitis. On June 1st the patient was much less restless but greatly more comatose than at the ward visit on the previous day. The pupils were now somewhat dilated and did not respond to light. The eyelids were sealed by a purulent exudation. During the night and the next morning Cheyne-Stokes breathing of a characteristic kind had been present, the respiratory period lasting from seven to ten seconds, the period of apnœa from three to five. The respirations were stertorous. The pulse was of small volume and low tension, numbering 140. The temperature at the time of the note was 103°, having been 102° at 8 o'clock the previous night. No definite petechial rash could be made out, but there was a slight livid mottling of the dorsa of the feet, a similar condition being noted on the upper part of the front of the chest. A distinct paralysis of the left side of the face and a paresis of the left arm were noted this morning. Retraction of the head was still marked, and any attempt to bring it forward met with the strenuous opposition of the patient. He occasionally placed his hand behind his neck as if holding it for the relief of pain. He swallowed a little milk during the night. The bladder had been quite incontinent, but the bowels had not moved since admission. Examination of the fundi showed slight congestion of the optic discs. After the ward visit on May 31st lumbar puncture was performed and two drachms of slightly blood-stained cerebro-spinal fluid were withdrawn, the admixture of blood being obviously accidental. Part of the fluid was sent to the municipal bacteriological department, and part was examined by Dr. McEwan. On standing a slightly red-coloured faint flocculent deposit settled in the tube, leaving the supernatant fluid perfectly clear. On staining films from the deposit with 10 per cent. fuchsin solution it was found to consist mainly of polymorphic leucocytes in the interior of many of which characteristic diplococci, varying in number from four or five to 20, were beautifully seen. The examination of the cerebro spinal fluid thus confirmed the diagnosis already arrived at of epidemic cerebro-spinal fever. Dr. R. M. Buchanan of the municipal laboratory also reported that in the specimen sent to him he had detected the diplococcus intracellularis meningitidis of Weichselbaum. The patient sank and died in the course of the evening of June 1st, the temperature having dropped shortly before death to 100°. He had been ill barely three days.

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[1] On June [illegible], the day after this lecture was delivered, Dr. Wright, senior assistant medical officer of health of Glasgow, informed me that the number of cases was [illegible]; that [illegible] had been subjected to post-mortem examination and [illegible] chiefly associated with Weichselbaum's diplococcus.

Necropsy.—A post-mortem examination was made on June 4th by Dr. Workman, pathologist to the infirmary, whose report is as follows: "External appearances.—A well-developed and well-nourished body. Post-mortem rigidity is pronounced. On removing the calvarium and reflecting the dura an extensive fibrino-purulent meningitis of the brain is observed, most advanced over the right hemisphere where the effusion is very thick and yellow. The disease does not seem so advanced at the base, but the membranes there are very opaque. The effusion is great between the lobes of the cerebellum behind. On removing the spinal cord the inflammation and effusion are found most pronounced over the lower dorsal and lumbar regions. The organs of the thorax and abdomen are found to present remarkably healthy appearances. The spleen is not enlarged, but there is perhaps a very slight cloudy swelling of the liver. Smears from the purulent exudation of the meninges on being stained show numerous diplococci of Weichselbaum, and the same organisms are found by Mr. J. A. Campbell, assistant bacteriologist to the infirmary, on culture. Weights of organs: heart, 12 ounces; right lung, 28 ounces; left lung, 22 ounces; liver, 58 ounces; spleen, 4 ounces; kidneys together, 12 ounces."

The post-mortem examination of this case fully verified the diagnosis at which we had arrived during life. I shall now shortly describe to you two other characteristic fatal cases occurring in the same family which I saw in consultation with Dr. Joseph N. Glaister on the evening of April 17th last. I shall simply read to you the notes which I made at the bedside and afterwards transcribed into my case-book immediately on returning home.

CASE 2.—Alice ——, aged three years, was well enough till Saturday afternoon, April 14th, when in the early evening, about 5 o'clock, she was observed to be heavy and dull. She then went out for a walk with her parents but had to be carried home and put to bed; since then she had been quite prostrate. All the Saturday night she was restless and perspired very much. Her mother poulticed her, thinking she had caught cold. Severe vomiting began on Sunday the 15th, at 2 o'clock P.M., and continued till Monday night. There was no diarrhœa but one good, though constipated, motion had been obtained on the 15th as the result of castor oil. On the evening of the 16th restlessness became more marked and retraction of the head was first noticed. When I saw her on the 17th the retraction of the head was very distinct and the nuchal muscles were very rigid. The child was still very restless, rolling about in her nurse's lap, and unconscious, or very lethargic. The pupils were dilated but responded slightly to light; slight squinting was now observed for the first time. The pulse was 120 and regular; the temperature was 101° F.; the respirations were 26 and occasionally of Cheyne-Stokes type. A few doubtful spots were observed on the trunk but their nature was difficult to determine in the gaslight. The tongue was dry and covered with a thick white fur.

The child, after improving somewhat, relapsed and died on May 5th, after 22 days' illness. On the 7th I was present along with Dr. Glaister, Professor J. Glaister, Dr. Chalmers, and Dr. J. Browne of Belvidere at the post-mortem examination, which was performed by Dr. Buchanan. The appearances revealed were typical of cerebro-spinal meningitis. The convolutions of the convexity were flattened and dry and here and there a little yellow exudate was observed in the sulci. The fluid in the ventricles was excessive in amount and presented an opaque grey appearance. A thick layer of pale yellow exudation enveloped the pons Varolii and upper part of the medulla oblongata, extending backwards on either side over the lower surface of the cerebellum. On the posterior surface of the dorsal region of the spinal cord there was a thick layer of yellow fibrinous exudation. Cultures were made by Dr. Buchanan from the exudate and from the cerebro-spinal fluid with, I understand, positive results.

CASE 3.—Maggie ——, aged eight years, sister of the foregoing patient, remained quite well till about 2 or 3 o'clock P.M. on Sunday, April 15th, the day after her sister turned ill when she sat on the fender and shivered. She was at once put to bed, and at 5 P.M. she seemed a little better and went to sleep till about 7 P.M., after which she became very restless and remained so all night. On Monday forenoon severe vomiting began, continuing till shortly before my visit on the evening of the 17th. I saw the vomited matter at that time and it had a black tarry appearance. At this time also there were very marked retraction of the head and extreme restlessness. She was extremely lethargic and the temperature was 103° F. The pupils were wide and responded to light. A number of round red spots were noted on the front of the chest and abdomen. The bowels had been moved by medicine and the motions were also said to have been somewhat tarry in appearance. This child died about four days later. No post-mortem examination was made, but Dr. Buchanan obtained Weichselbaum's diplococcus intracellularis from the opaque cerebro-spinal fluid obtained after death by lumbar puncture.

The violence of the initial vomiting in these two cases, just as in the case we observed together in Ward 12, raised at first the question of the possibility of irritant poisoning as the cause of the symptoms. After careful inquiry, however, Dr. Glaister and myself agreed that this hypothesis might be set entirely aside and that the disease from which the little patients were suffering was acute cerebro-spinal meningitis. We further agreed that the cases should be reported to the medical officer of health. This was done by Dr. Glaister next morning and with reference to the presence of a rash in these cases Dr. Chalmers, who afterwards saw the patients with Dr. Glaister, writes in his memorandum as follows: "In the children forming Group 2 above noted a limited number of spots were present on the skin from the third day of their illness. These were few in number, petechial in character, and irregularly distributed. In one child they were present on the abdomen and ankle, in the other on the neck and upper part of the chest and on the inner aspect of the thigh and ankles. They were more pronounced than a typhus rash and much more limited in distribution."[3]

The epidemiological history of cerebro-spinal fever has been written in numerous monographs and reports during the nineteenth century and it is impossible to enter into a detailed discussion of this interesting subject now; it will be sufficient if I refer you to the chief sources of information on this point. Perhaps the most complete of the earlier accounts is that of Hirsch, contained in the third volume of his "Historical and Geographical Pathology," as translated into English by the New Sydenham Society. A good historical outline is also contained in Edward W. Collins's "Report upon Epidemic Cerebro-spinal Meningitis" published in the *Dublin Quarterly Journal of Medical Science*, vol. xlvi., 1868, p. 170. Among more recent contributions undoubtedly the best is the Report on Epidemic Cerebro-spinal Meningitis prepared for the Massachusetts State Board of Health by Councilman, Mallory, and Wright in 1898 dealing with the outbreak in Boston in 1896-97, during which 111 cases were minutely investigated, clinically, pathologically, and bacteriologically. Hirsch divides the epidemic prevalence of the disease in the nineteenth century into four periods: (1) 1805–30, the outbreaks being chiefly in the United States; (2) 1837–50, chiefly in France and Algiers; (3) 1855–75, chiefly in Germany; and (4) 1875 till the present time.

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[3] In THE LANCET of July 7th, 1906, p. 47, Dr. Chalmers has added to this statement by saying that since it was published he has seen a case in a child in which "the features of a typhus rash were exactly reproduced within limited areas of the skin" on the fourth day from the onset.

Up to 1868 the appearance of the disease in Great Britain was, according to Collins, confined chiefly to Ireland where in the majority of the workhouses of the country it first occurred in 1846; a remarkably fatal outbreak also began in 1866 and lasted till the date of his report 1868. Writing in that year Collins states: "Cerebro-spinal meningitis has never become epidemic in England. Indeed, so rarely has it been observed there that the fact of its occurrence in that country might almost be passed over in silence." Sporadic cases had, however, been reported from 1807 onwards. "If," he continues, "we now glance at the diffusion of cerebro-spinal meningitis upon European soil during the present century, we find that Turkey, Greece, Belgium, Scotland, Iceland, and Russia alone, so far as our present limited information warrants such an assertion, have remained unscathed." Probably the first outbreak to be recorded in Scotland in detail was that occurring in the village of Galston in Ayrshire reported by Dr. W. Frew, now of Kilmarnock, in the *Glasgow Medical Journal*, July, 1884, p. 21. I remember being present at the meeting of the Glasgow Pathological and Clinical Society at which Dr. Frew read his paper and of seeing specimens which he had sent to Dr. Joseph Coats from his post-mortem examinations.[4] I have seen one or two other sporadic cases, but I know of no other epidemic outbreak in the West of Scotland since then.

In the Massachusetts report the authors remark that, "as a rule, none of the epidemics has shown a continuous extension," and that "the outbreaks of the disease have been seen as perfectly isolated epidemics in places which had hitherto been free from it." Many of the epidemics have not embraced more than from four to six cases, and most of the accounts concern only sporadic cases. All the epidemics have been most marked in the winter and spring and the disease attacks chiefly children and young adults. Epidemics have also been frequent in garrisons and in convict prisons, sometimes, indeed, limiting themselves to the military and sparing the civil population. One of the most striking features of the epidemiology of cerebro-spinal fever is the limited number of cases and the isolated character of many of the outbreaks. As regards the earlier accounts one wonders whether all the cases recorded were really to be regarded as examples of cerebro-spinal fever, particularly such cases as could be designated "spotted fever." Murchison and others believed that epidemic cerebro-spinal fever was but a modification of typhus fever, and although it must now be admitted that this is not so it is quite likely that cases of typhus fever were included in the statistics of earlier epidemics. By the use of the lumbar puncture we are now able to be much more accurate in diagnosis. In the epidemics which have occurred during recent years in Europe and in America the numbers of cases have been relatively large. In Silesia in the spring of 1905, 1953 cases were recorded with a death-rate of 50 per cent.; the disease had been absent from Silesia for 30 years. In New York in February, 1905, deaths to the number of 149 occurred, and a commission was appointed to devise measures of prevention; in the same city in 1872 there were recorded 990 cases with a death-rate of 77 per cent. During the first seven months of 1898 in Chicago close upon 200 cases were observed and a report on the disease was prepared by Dr. W. J. Class and published in the *Journal of the American Medical Association*, March 25th, 1899. Addressing the centennial meeting of the Medical and Chirurgical Faculty of Maryland in April, 1899, Professor W. Osler called the affection an "American disease," and referred to the value of lumbar puncture in establishing the diagnosis.

Such facts as I have mentioned, and they might be multiplied indefinitely, fully establish the epidemic character of the disease. But there still remain for consideration the sporadic cases. These, though perhaps rare in occurrence, are apparently always with us. Are they of the same nature as the epidemic disease? I think undoubtedly that some of them are. In a number of sporadic cases an organism similar to Weichselbaum's diplococcus has been discovered and in others the pneumococcus has been present. In London there has long been recognised a form of meningitis which has been designated posterior basic meningitis or cervical opisthotonos, an affection which has been carefully investigated by Still and Hildesheim.[5] In some of these an organism closely resembling the diplococcus of Weichselbaum has been discovered. It is perhaps, however, as yet impossible to say whether the sporadic is essentially the same as the epidemic disease, but so far as I can judge from the evidence at present before me I think they are. If this be so, then we have to recognise the fact that cerebro-spinal fever may not only be epidemic but also endemic; that as regards its prevalence in the community it may somewhat resemble pneumonia: it may be always with us and yet liable to epidemic outbreak.

As regards the bacteriology of epidemic cerebro-spinal fever there is still difference of opinion as to whether it is caused by one specific organism or not. There can be no doubt that cerebro-spinal meningitis is capable of being produced by several micro-organisms—the pneumococcus, Weichselbaum's diplococcus intracellularis meningitidis, the tubercle bacillus, the streptococcus, &c. In many of the cases due to other organisms than the diplococcus intracellularis the meningitis is secondary and so may be excluded from consideration in the investigation of the etiology of epidemic cerebro-spinal fever. Jaeger, Heubner, and Councilman, Mallory, and Wright incline to the view that the epidemic form of cerebro-spinal meningitis is caused by Weichselbaum's diplococcus alone, whilst Netter, who has written largely and well on the subject, does "not in any way accept this view," and he regards it as "even possible that the diplococcus intracellularis may be a degenerated form of the pneumococcus."[6] In this connexion it may be interesting to quote the conclusions of G. Canby Robinson, of the Ayer Clinical Laboratory, Philadelphia, who has made one of the most recent investigations into the bacteriology of epidemic cerebro-spinal meningitis.[7] "In a study of 15 cases of epidemic cerebro-spinal meningitis the organism isolated from the spinal fluid, circulating blood, pus from the conjunctiva, and from the central nervous system at autopsy, agrees in all respects to the diplococcus intracellularis meningitidis of Weichselbaum. It was isolated in pure culture from the spinal fluid of the 14 cases in which lumbar puncture was performed and is to be considered the causal agent in all the cases." It is therefore, perhaps, impossible at present to be absolutely certain that the diplococcus intracellularis is the specific organism of epidemic cerebro-spinal fever, but notwithstanding the able ratiocination of Netter I am inclined to think that the further investigation, which is still necessary, will prove that it is so. Certainly from the clinical point of view, and so far as the bedside phenomena of the cases here recorded go, there seems to me to be little doubt that epidemic cerebro-spinal fever is as specific as typhus fever.

Netter is a firm believer in the contagious nature of epidemic cerebro-spinal meningitis, but points out that the earlier observers of the French epidemics had little belief in it. It is admitted, however, that "the degree of contagiousness is less marked than that of most of the other infectious diseases." In this respect it may be said to resemble tuberculosis or enteric fever as regards its contagious quality. As regards the mode of contagion, some believe that the poison may be conveyed in the excretions from the nose. Quite recently also Canby Robinson reports that he has isolated the diplococcus intracellularis meningitidis from the pus of the purulent conjunctivitis which sometimes complicates epidemic cerebro-spinal fever, as it did in our first case. A number of observers believe that the path of infection may be by way of the lymph spaces of Axel Key passing "through the fronto-ethmoid foramen or the cribriform plate of the ethmoid bone." While admitting the possibility of direct nasal infection, Netter believes "that the pathogenic agents most frequently reach the meninges by way of the blood, and that they enter this fluid from the pulmonary alveoli." Such observations teach us that the excretions from the nasal cavity and from the conjunctivæ are highly dangerous, and that in the nursing of every case of cerebro-spinal meningitis careful provision should be made for their thorough disinfection. As regards the first case reported in this lecture Dr. Chalmers kindly ascertained for me the following facts which may have a bearing upon the question of contagion. The patient in Case 1 had a baby boy who died in the Sick Children's Hospital on April 21st, 1906, certified "meningitis"—tubercular (P.M.). He is said to have kissed the child after death. Further, it was found that a child, aged five years, a cousin of the patient, died on May 10th, 1906, certified as "probably meningitis." He visited this child's house and is said to have also kissed the child after death. Of course too much cannot be made of this in support of the doctrine of contagion but the circumstances are at least of interest in connexion with the patient's own illness and death, and they certainly indicate that it may be dangerous for the parents and relatives of children suffering from meningitis to kiss them.

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[4] A summary of Dr. Frew's papers by Dr. Wright and Dr. Archibald will be found in THE LANCET of June 30th, 1906.

[5] THE LANCET, April 15th, 1905, p. 1010; also May 20th, 1905, p. 1332.

[6] Twentieth Century Practice, vol. xvi., 1899, p. 191.

[7] Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, Philadelphia, Pa., No. 3, June, 1906, p. 27.

The diagnosis of cerebro-spinal fever while the disease is prevailing in epidemic form should not be difficult, although it must be admitted that sporadic cases from the likelihood of their being confused with the ordinary meningitis of infancy and childhood may give some trouble. Cases such as those described in this lecture present no great difficulty in diagnosis and would not, I think, do so even if they had occurred as sporadic cases. The onset as sudden as that of pneumonia, the rigor, the violent initial vomiting raising sometimes the suspicion of irritant poisoning, the headache of excruciating severity, the restlessness and rapid onset of unconsciousness, the retraction of the head and manifestations of pain on attempts to bring it forward, the occasional presence of a petechial rash, and Kernig's sign make up a clinical picture the significance of which cannot easily be mistaken. In *foudroyant* cases the passage of the patient in the course of a few hours into a state of coma and extreme danger is one of the most striking phenomena of the disease. Yet it is possible that symptoms very similar to these and due to other causes altogether may sometimes be met with and lead to a diagnosis of cerebro-spinal meningitis when that disease is not present. Such a case occurred in Ward 7 during the past winter. I made a diagnosis of cerebro-spinal meningitis, in which my colleague Dr. George S. Middleton agreed. The symptoms had caused my resident to think of typhus fever; I saw the patient only once and he died within 24 hours of admission, the illness having lasted only three days. The post-mortem examination proved that the case was one of fæcal impaction and poisoning and that the brain and spinal cord presented healthy appearances. The following are the notes of the case.

CASE 4. *Fæcal poisoning erroneously diagnosed as cerebro-spinal meningitis.*—A man, aged 20 years, was admitted on Dec. 31st, 1905, and died on Jan. 1st, 1906. He had been suffering from an illness of three days' duration. The history of the illness cannot be obtained at present but the following details are supplied by Dr. S. C. Cowan of Kirkintilloch who had sent in the patient. "Illness began three days ago, when giddiness and weakness of the legs were complained of. Ankle clonus is very marked and the other reflexes are exaggerated. Temperature has been above normal. Pulse 120. Bowels have been freely moved. Intense thirst has been present. Urine normal. Tongue has been dry from onset." His condition on Dec. 31st at 7.30 P.M. was as follows. The temperature was 97° F., the pulse was 102, and the respirations were 30. The patient lay on his right side and was practically unconscious. The breathing was very laboured, marked muscular effort being used to get each breath in. There was movement of the jaw, nose, and throat with each respiration. The face was flushed and the ears were very livid. The pupils were moderately contracted but became smaller under a strong light. In watching them they were seen to contract slightly with each respiration. The conjunctivæ were clear The tongue was exceedingly dry. The general condition was that of a strongly-built, rather spare man. The extremities were very cold. The skin was in a dirty condition on admission; on inspection afterwards there was seen a mottled appearance consisting of small patches of brownish pigmentation to be found on all parts of the body but not the face. The colour was very faint on the chest, abdomen, and back, and was more marked on the limbs. It was very specially distinct on the dorsa of the feet where the colour was a distinct brown. Along with this mottling there were definite spots, small red papules, slightly elevated, and disappearing on pressure. These were very scattered, being most marked on the forearms but also present on the chest, the abdomen, the back, and the legs, and there were one or two on the brow. Owing to the restlessness of the patient a detailed examination of the various viscera was not possible and it was necessary to provide a male nurse to watch at his bedside. There was pulsation in the third and fourth spaces of the heart, the apex beat seemed to be in the fourth, three inches to the left. The cardiac dulness was certainly not enlarged. The sounds were pure. The lungs were resonant all over and the respiratory murmur was vesicular and free from adventitious sounds. The abdomen was tympanitic and well formed. There was no enlargement of the liver or the spleen. As regards the nervous system, the knee and Achilles tendon jerks were exaggerated, as were also the tendon reflexes in the arms. Ankle clonus was obtained by the medical man who sent the patient in but was not now found. No plantar reflex was obtained. Sensation could not be tested. On ophthalmoscopic examination of the right eye the fundus was found to be normal. No urine had been passed since admission (12 noon). The rectal temperature taken afterwards had not risen above 95°. On Jan. 1st the patient continued in the same collapsed condition all day. The lividity of the whole body became more marked and the temperature would not rise at all in the thermometer, even when taken in the rectum. At 6 P.M. the breathing became worse and the patient gradually sank. There was at no time retraction of the neck or opisthotonos. The body, however, was somewhat rigid, but in a flexed state. Restlessness was a marked feature throughout but the patient never regained consciousness. The conjunctivæ remained clear throughout. No urine was passed. At the visit this morning I considered the blue mottling a "*tâche bleuâtre*," and the case was diagnosed as probably cerebro-spinal meningitis. This opinion was also expressed by Dr. Middleton.

Necropsy.—The following are the notes of the post-mortem examination: "Ptomaine poisoning from extensive fæcal accumulation in ascending and transverse colon. Descending colon and rectum empty. The weights of the various organs are: heart, 9½ ounces; right lung, 19 ounces; left lung, 13½ ounces; liver, 56 ounces; spleen, 2½ ounces; and kidneys, each, 4 ounces. The body was cyanosed and covered with a macular livid eruption, spots varying in size, mostly large. Death was thought to be due to cerebro-spinal meningitis. The heart was small and the pulmonary valves were competent and healthy. The mitral and tricuspid valves were healthy and of normal size. The lungs were emphysematous and congested. The spleen was small. The liver was fatty and congested. The kidney capsule was adherent in places. The pyramidal area was relatively congested. The stomach showed areas of ecchymosis. The intestines were generally congested. There was no enlargement of Peyer's patches. The cæcum was much distended and full of fæces. The whole ascending colon was distended with firm fæces. In the transverse colon were masses of fæces of the size of a walnut. The descending colon was empty. An intussusception was found in the small intestine, probably *post mortem*. The mucous membrane of the cæcum was greatly thinned and congested and in a few places was sloughing. There were patches of great congestion over the large intestine. There were no exudate at the base of the brain and no increase of fluid in the lateral ventricles; it presented a very healthy character. The spinal cord presented no exudation and was apparently healthy."

I have thought it right to record this error of diagnosis as it proves that other toxæmic conditions may give rise to symptoms not unlike those of cerebro-spinal meningitis but which would not be likely to give rise to error if the disease were known to be epidemic at the time. That this is not the only error of the kind that has been made is proved by a case shortly recorded in THE LANCET.[5] During an outbreak of epidemic cerebro-spinal fever in Egypt one case was diagnosed by several medical men as of this nature and arrangements were being made to perform lumbar puncture when the patient passed 36 ascarides lumbricoides, after which he rapidly got well.

The diagnosis of epidemic cerebro-spinal meningitis from tuberculous meningitis in the case of young infants may cause considerable difficulty; in older children the difficulty should not be so great. In the latter affection the gradual onset, the less severe gastric symptoms, the somewhat slow evolution into a critical condition, the late development of delirium and coma, and the usual absence of retraction of the head and of Kernig's sign should help us in our efforts at diagnosis. But whenever there is a doubt the lumbar puncture should be resorted to. It is quite possible that the posterior basic meningitis or cervical opisthotonos of Great Ormond-street, of which half the cases occur in infants under one year, may possibly yet turn out to be examples of sporadic epidemic cerebro-spinal meningitis, although on the whole Hildesheim inclines to the view that they are not.

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[5] THE LANCET, May [illegible] 1906, p. 700.

As regards prognosis, I may only add that from 30 to 50 per cent. of cases of epidemic cerebro-spinal meningitis may be recovered from, often with some nervous, functional, or paralytic defect left behind. The duration of the disease may vary "from two days up to 74 days," six and a half days for acute and 28½ days for chronic cases being perhaps an accurate average.[9] The same writers further state that "we believe that all infections of the meninges other than the diplococcus intracellularis are fatal," adding, however, that this belief must be confirmed by "examination of the exudation obtained during life by spinal puncture."[10] With this belief I am in perfect agreement, especially as regards tuberculous meningitis, and the rare cases which in practice I have seen of recovery from apparently tuberculous meningitis have now to me assumed a new aspect.

In conclusion as the result of my study of this interesting disease, specially interesting to us in Glasgow at the present time, I may venture to formulate the following propositions:—(1) That sporadic epidemic cerebro-spinal meningitis or fever is probably more frequent in our midst than we have hitherto supposed; (2) that epidemic cerebro-spinal fever is to be regarded as a specific disease and that it is in all probability caused by the diplococcus intracellularis meningitidis of Weichselbaum; (3) that in many cases the diagnosis can only be rendered certain by lumbar puncture; and (4) that all personal contact with the sick of such a nature as to render possible contamination by the excretions from the nose or the conjunctivæ should be strictly avoided and that all such discharges should be thoroughly disinfected.

THE SUBMUCOUS (OR WINDOW) RESECTION OPERATION FOR CORRECTION OF DEFLECTIONS OF THE NASAL SEPTUM.

By E. FURNISS POTTER, M.D.,
SURGEON TO THE LONDON THROAT HOSPITAL.

THE advent of the "fenster" resection or "window" operation may be said to have revolutionised the treatment of deviations and other deformities of the nasal septum. Among other deformities may be mentioned the projections known as spurs or crests. The practice of removing these obstructions by sawing them off has practically been superseded by the window operation. The skeletonising of the cartilaginous and bony septum, which is an essential part of the submucous resection, allows of a much more accurate estimate of the nature of the deformity and shows that what were formerly regarded as ledge-like outgrowths of bone or cartilage, or both, are in reality but the thickened angular summits of septal deflections. This demonstrates clearly the reason why the results of attempts to saw off the obstructing "spur" were frequently so disappointing, as, for instance, on examining the piece thus removed the greater part of it would be found to consist of mucous membrane with only a small shaving of bone or cartilage, and consequently the patency of the naris would not be materially increased; on the other hand, if the operator were determined to be thorough a considerable perforation would result, the angle of the deflection having been sawn through instead of what was apparently a solid ledge.

It would be waste of space to review in detail the various operations which have been devised and performed for the cure of nasal stenosis due to malposition and deformity of the septum, but it may be safely said that none of these could be looked upon as wholly satisfactory; for the bending operations, such as Adams's, usually failed in their object owing to the resilient cartilage returning to its faulty position, and the cutting operations, such as those of Asch or Moure, although they might relieve the stenosis, yet were apt to leave a permanent perforation of considerable size. This, though it was claimed to be no disadvantage to the patient, nevertheless could not be looked upon as an entirely satisfactory result. The "window operation" is free from both these objections: the septal deformity is permanently corrected and if due care be taken the risk of a permanent perforation is extremely small. Briefly defined, the "fenster" resection consists in making an incision or incisions on the convex side of the deviation and separating the mucous membrane from the cartilage and bone over the whole area of the deviation. A vertical cut is then made through the cartilage, taking care to avoid perforating the mucosa on the concave side. Through this slit an elevator is introduced and the mucous membrane is stripped off the concavity. The whole of the deviated portion of the septum being freed from mucous membrane is now removed, either by special knives for the purpose or with punch forceps. The flap removed from the convexity is replaced so that its inner surface comes into contact with the inner surface of the mucosa of the other side, which now, instead of being concave, hangs straight like a curtain in the middle of the nasal cavity. The two raw surfaces adhere readily and the wound in the mucous membrane is usually healed in a week or ten days.

The following are the essential details of the operation:—

Anæsthesia.—If the patient be of stable temperament and it can be ascertained that the deflection is situated quite anteriorly, involving the cartilage only, and consequently the operation can be easily and quickly completed, I prefer to operate with cocaine anæsthesia only. If two plugs of absorbent cotton-wool saturated with a solution of cocaine 20 per cent. and adrenalin $\frac{1}{10}$ per cent. be placed in contact with, and on each side of, the septum and kept in position for not less than 20 minutes, the operation can be performed without any sensation of pain, and the addition of the adrenalin renders the procedure almost bloodless. If the patient, however, be nervous and not to be relied upon for self control—moreover, if the deflection extends far back, involving bone, and the appearance is such that the operation is likely to prove long and tedious—it is advisable to have resort to a general anæsthetic. In this case it is necessary also to apply adrenalin to the area to be resected for not less than 20 minutes before beginning to operate. I am of opnion that gas and ether is the best to commence with, and after the patient is "well under" the anæsthesia should be maintained by chloroform. A light anæsthesia is sufficient—just enough to keep the patient quiet.

Position.—The recumbent position with the head slightly raised will serve well, except for the removal of the lower part of the deflection—i.e., the lower border of the vomer and the incisor crest running along the floor of the nose. For this, in order to see satisfactorily, it is necessary to have the patient sitting up. On the whole I prefer the sitting up position from the commencement. It has also this advantage, that if there be any bleeding the blood escapes anteriorly instead of flowing into the naso-pharynx, as it does in the recumbent position.

Light.—The interior of the nose can be amply illuminated by means of the rays from an ordinary focal electric lamp (32 candle-power) reflected from a head mirror. Some operators prefer a Kirstein's electric head light, but of this I have no experience. It is said to be an advantage for the operator to be independent of a fixed light for reflection, and that because the rays from a Kirstein's lamp are parallel to those entering the eye a more perfect illumination of the deeper parts of the interior of the nose is obtained.

Assistance.—It is necessary for an assistant to hold the patient's head steady and to vary its position from time to time according to the requirements of the operator. An assistant can also render aid by holding the speculum, or special retractors, which are preferred by some for keeping open the naris. I have been in the habit of using an ordinary Thudicum's speculum, of as large a size as possible, and have found that it answers the purpose perfectly well.

Incisions in mucous membrane.—It is, I think, universally agreed that it is best to commence the resection from the convex side. I have found that for the more usual deflection with a vertical and horizontal angle, an L shaped incision—as advised by Freer—(Fig. 1) best answers the requirements. The vertical limb should be made along the summit of the vertical angle of deflection, should commence high up in the septum above the deviation, and should extend to below the horizontal portion of it. The horizontal cut should be made from the base of the vertical and be carried forward along the lower border of the septum till it is well in front of the deflection. The L shaped incision has this additional advantage, that it does not correspond to the slit in the cartilage, which latter is made considerably anterior to it, and therefore when the flap is replaced it well covers what becomes the anterior border of the window, so that if in making the anterior slit in the cartilage the mucosa of the opposite side be accidentally perforated the wound will be completely overlapped by the shaped flap and a permanent perforation avoided. Other incisions may be made to suit individual circumstances and varying conditions, such as, for instance, in a purely horizontal, crest-like deflection, an incision extending along the summit, with a short vertical one anterior to the commencement of the deflection, enables a superior and inferior flap of mucous membrane to be stripped off (Fig. 2).

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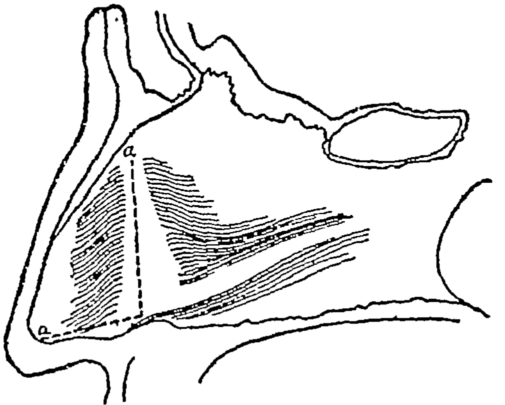
[9] Councilman and others: American Journal of the Medical Sciences, vol. cxv., 18[illegible]

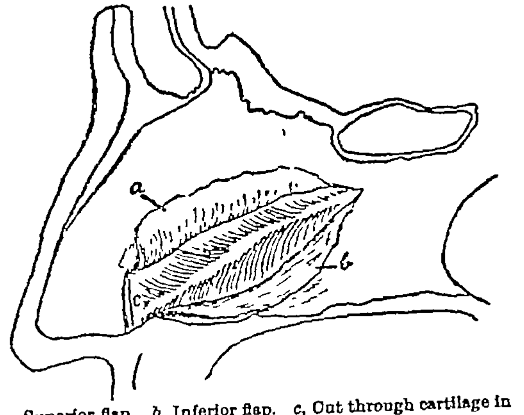
[10] Loc. cit., p. 270.

FIG. 1.



a, a, Outline of mucous membrane incision.

FIG. 2.

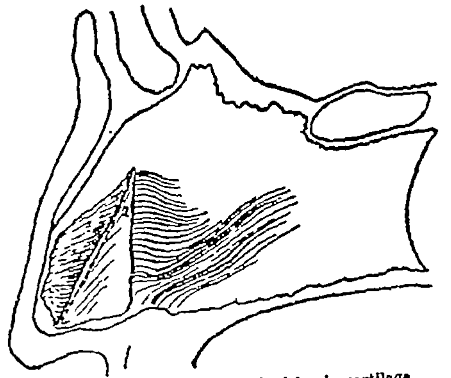


a, Superior flap. *b,* Inferior flap. *c,* Cut through cartilage in front of deflection.

In making these incisions care should be taken to avoid perforating the cartilage. This is not an unnecessary precaution, as where the cartilage is very thin, as it sometimes is, it is very easy, especially with a pointed knife, to perforate it. For this reason it is well to use a special knife with a round-edged blade. Freer lays considerable stress on the necessity for thoroughly cutting through the mucoperichondrium, so that it may be raised from the subjacent cartilage. He says that if the perichondrium has not been divided on attempting to bare the cartilage the elevator will pass between the mucous and perichondrial layers, and it will be found to be an exceedingly difficult task to separate the mucosa from the perichondrium, whereas, as a rule, the whole muco-perichondrium can be raised without much trouble and frequently with surprising ease.

Separation of mucous membrane.—The flap outlined by the incisions is now stripped off the cartilage. This can usually be readily accomplished with a small, thin spatula, blunt-edged, and curved slightly on the flat. This curve facilitates working forwards from the vertical incision. In some cases there is considerable adhesion between the soft covering and the cartilage. The parts where adhesions are most frequently met with are the anterior region of the triangular cartilage, the summits of the angles of deflection, and along the incisor cres In these cases the mucosa must be carefully dissect off and for this purpose a sharp edged spatula is preferabl a perforation being less likely to be produced than by t blunt-edged instrument. After having bared the cartila over the area outlined by the incisions the part of t deflection behind the vertical angle is stripped of its coveri by inserting the spatula beneath the mucosa and free separating it until the whole of the convex side is denude A vertical slit is now made in the cartilage anterior to t commencement of the deflection (Fig. 3). This has to done with great care in order to avoid cutting through t mucosa of the concave side. It is best effected, I thi with a knife having a round-edged blade, the same, in fa as previously mentioned for making the primary incisio A finger should be placed in the opposite nasal fo in order that it may feel the knife before it c out through the mucous membrane. Through this the spatula is introduced and the mucous membr of the concavity separated from its attachment. There no greater difficulty in doing this than in clearing convex side, though frequently the mucosa is firmly adher in the deepest part of the hollow and the sharp-blac spatula will have to be employed. With a speculum in nostril of the concave side, the instrument can be s working its way beneath the mucous membrane, and it well, in order to avoid a perforation, that the curve of spatula should look towards the cartilage, as in this way edge is kept close to its surface. The operator should n assure himself that he has thoroughly separated the soft tissue from the area of deflected septum. This is most important, as if any of the mucosa remain attached it will be torn when the piece of septum is removed. Reliable indications of sufficient separation are the disappearance of the concavity and the straight curtain-like hang of the mucous membrane (Figs. 4 and 5). It now remains to remove the deflected portion of septum, which may be punched out piecemeal with Gruenwald's forceps, or some modification of this. Some operators speak highly of Killian's knife, which is a fork-shaped instrument with a small blade between the prongs of the fork, and is used for making the horizontal cuts at the top and the bottom of the deflection. Personally, I have found that the two horizontal and the posterior vertical incisions can be made very readily by employing two knives (designed by Freer) with short (about four millimetres) pointed blades at right angles to a long slender shaft. One is made so that it may be introduced under the mucous membrane to well behind the deflection; its point is turned towards the cartilage and a cut made from above downwards, dividing the cartilage behind the deflection. The blade of the other knife is so arranged that by inserting it to well behind the deviation and drawing it forward the cartilage is divided horizontally. Two of these horizontal incisions should be made, one above and the other below the deflection. It should now be possible to seize the portion of septum included by these incisions and to remove it in one piece. If the deformity were entirely cartilaginous the operation would now be completed and nothing remain to be done except to replace the flaps on what was the convex side. However, it frequently happens that the deflection extends into the bony part of the septum and when this is so its removal is

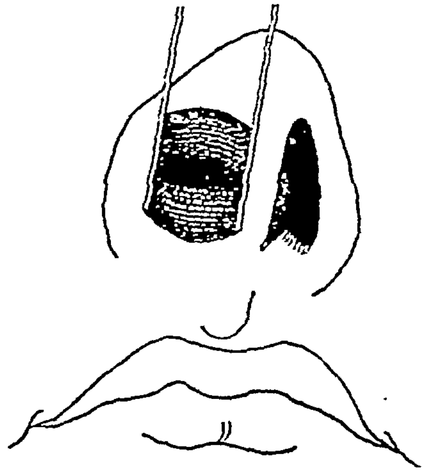
FIG. 3.



Dotted line *a* indicates first incision in cartilage.

rendered more difficult and tedious. The little rectangular knives which cut through the cartilage so readily are not applicable here. As a rule, all the upper part of the deflection may be cut away piece by piece with punch forceps without much difficulty. The most troublesome part to remove is the lower border of the vomer and the ridge of bone (incisor crest) with which it is articulated.

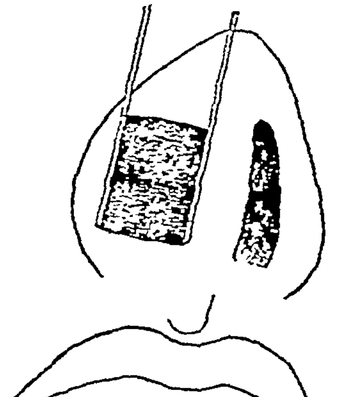
FIG. 4.



Showing the concavity before separation of the mucous membrane.

This is frequently included in the deflection, is very thick and hard, and forms a considerable part of the obstruction, so that its removal is absolutely necessary if a perfect result is to be looked for. In my experience I have not been able with the punch forceps to make any impression on this hard ridge. The two instruments which have proved most serviceable in my hands for this work are Killian's bayonet-shaped gouge and Bosworth's nasal saw.

FIG. 5.



Showing the straight "hang" of the mucous membrane after separation.

With the latter, even if one does not cut completely through the bony ridge, if a groove be made on each side, the attachment is weakened, and if then seized with punch forceps it can be broken off. The *operator should* now satisfy himself that he has thoroughly removed the deflected portion of the septum. If this be so, the flap on the convex side will hang down straight when replaced, the nasal passage on this side will appear freely patent, the posterior wall of the pharynx being readily seen, and on the concave side the hollow should be effaced. This is an important point, as if sufficient bone has not been removed the result is likely to be disappointing. The flaps are now replaced, and in order to keep them in position until adhesion has taken place it is a good plan to pack lightly the nasal fossa with short lengths of gauze (about two inches) wrung out in solution of peroxide of hydrogen (ten volumes) and laid one over the other. Done in this way, the gauze can be removed more easily, and if previous to attempting withdrawal it be moistened with peroxide of hydrogen there will be no likelihood of dragging the flaps out of position. The packing may be left in for 48 hours. It should then be carefully withdrawn piece by piece. All that is necessary in the way of after-treatment is to spray the nasal fossæ daily with an alkaline solution. Occasionally I have deemed it wise—in cases where the cavity was somewhat narrow and owing to swelling of the tissue there seemed to be some danger of the granulations at the edge of the flap contracting adhesion with the opposite turbinal—to insert a thin, nasal celluloid splint. This can be worn as long as may be considered necessary without causing any irritation. The advantage of the resection is more fully appreciated by the patient after about a month or six weeks, when the swelling incidental to the operation has completely subsided.

It has been contended by some that the time taken by the operation (sometimes between one and two hours) is a serious drawback, but I think no *one* who has had any experience of these cases can deny that the time is well spent and amply compensated for by the very excellent results which are obtained.

In conclusion, I have to acknowledge indebtedness to Dr. Otto Freer of Chicago for kindly permitting me to reproduce some of the diagrams from his valuable monograph.[1]

Queen Anne-street, W.

PRESENCE OF THE BACILLUS TYPHOSUS OR A CLOSELY ALLIED ORGANISM IN A SAMPLE OF DISTILLED WATER SUSPECTED TO HAVE CAUSED TYPHOID FEVER.

BY ROBERT W. C. PIERCE, M.D. LOND.,
MEDICAL OFFICER OF HEALTH OF GUILDFORD;
AND
JOHN C. THRESH, M.D. VICT., D.SC. LOND., &C.,
LECTURER ON PUBLIC HEALTH, LONDON HOSPITAL MEDICAL COLLEGE.

THE origin of so-called "sporadic" cases of infectious disease are rarely so fully investigated as they deserve. In a large number of instances the source of the infection is never traced, the medical officer of health either failing to find a clue or not having the necessary time to make a prolonged investigation. There can be no doubt, however, that careful and systematic inquiries into the source of infection in such cases would often lead to results of great epidemiological interest, throwing light on their origin and possibly revealing hitherto unsuspected modes of infection. The present article deals with one of these sporadic cases, the origin of which is fairly conclusively traced to the use of distilled water for potable purposes, and the investigations revealed also the possible means whereby the water or the vessel containing it became infected.

Towards the end of March last a man, aged 30 years, was notified as suffering from typhoid fever. On the seventh day of his illness his blood gave but a partial reaction with Widal's *test*, on the eleventh day the reaction was more marked, and about a week later the reaction was decided even with a dilution of 1 in 200. The clinical diagnosis was therefore fully confirmed and there could be no doubt about the nature of the case. There were no other cases in the neighbourhood, nor had there been any for a considerable period, and as we are no longer satisfied with the mere discovery of slight drainage defects as explaining the origin of these isolated cases very careful inquiries were made to ascertain whether any article of food or drink was, or had been, used by the patient but not by other members of the household. It was found that the patient alone used distilled water, drinking about a pint first thing every morning. The water was obtained in stone jars with wooden taps and the evidence was volunteered that the water was sometimes seen to contain a little fluffy material and that the jar had a suggestive odour of ginger-beer. It seemed barely possible that this water could have any connexion with the disease, but as no other more probable source of infection could be found a sample of it was taken for bacteriological examination. Various quantities of it were added to taurocholate glucose broth and the mixture was placed in the incubator. Quantities of five cubic centimetres and upwards produced acid, but no gas, and upon examination in the hanging drop it was found swarming with an actively motile bacillus which did not stain by Gram's method and which "clumped" when mixed with one-fortieth part of the serum from the patient's blood. From this growth plates were made on Conradi and Drigalski's medium when an abundance of colonies were obtained exactly resembling those of the bacillus typhosus. These results were so significant that whilst further bacteriological work was being undertaken inquiries were instituted with reference to the source from which the distilled water was obtained. The maker was interviewed and it was then ascertained that he had supplied a number of bottles of distilled water to a chemist in a town where typhoid fever was epidemic and that the bottle which contained the implicated water had been returned from this town. It was asserted, however, that the bottles were thoroughly steamed before being refilled and again sent out. This steaming does not appear to have sufficed in all cases to remove the odour of the ginger-beer which had previously been stored in these bottles, and it would probably be very difficult to sterilise effectually the wooden tap. In any case the bottle and tap had been in a town where typhoid fever was rife and possibly, nay probably, in a house in which there was a patient suffering from the disease, but this it was impossible to ascertain definitely since the chemist obtained a large number of bottles of distilled water at a time during the epidemic.

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[1] Annals of Otology, Rhinology, and Laryngology, June, 1906.

The further examination of the water failed to detect the presence of the bacillus coli, though it was soon found that the taurocholate broth contained more than one organism. It is unlikely, therefore, that the water or tap had been contaminated by fæcal matter and how the particular organism ultimately isolated gained access to the water cannot be traced definitely. Two closely related bacteria were ultimately isolated and their characteristics are compared with those of the bacillus typhosus in the appended table. The bacillus A was the more fully examined since it more nearly corresponded with the bacillus typhosus and it will be noted that the only differences ascertained were that bacillus A produced a little more opaque growth on gelatin and on potato and was capable of producing acid in a broth containing saccharose.

—	Bacillus A.	Bacillus B.	Bacillus typhosus.
Growth on Drigalski's medium.	Violet blue colonies.	Violet blue colonies.	Violet blue colonies.
Growth on gelatin.	Like bacillus typhosus but a little more opaque.	Like bacillus typhosus but a little more opaque.	Typical.
Growth on potato.	Not so visible as B; more than typhosus.	Very visible, dirty, creamy.	Almost invisible.
Growth on bile-salt neutral red agar.	White colonies.	White colonies.	White colonies.
Bile-salt glucose broth.	Acid; no gas.	Acid; no gas.	Acid; no gas.
Neutral-red agar, shake culture.	No fluorescence.	Fluorescence.	No fluorescence.
Litmus milk.	Acid slowly formed; no clot or bleaching.	Acid and clot in two days. Bleaching effect.	Acid slowly formed; no clot or bleaching.
Indol in broth.	A doubtful trace.	None.	A doubtful trace.
Lactose broth.	No acid or gas.	No acid or gas.	No acid or gas.
Mannite broth.	Acid only.	—	Acid only.
Dulcite broth.	No acid or gas.	—	No acid or gas.
Saccharose broth.	Acid only.	—	No acid or gas.
Widal's reaction.	1 in 30, marked.	1 in 30, distinct.	1 in 30, distinct.
"	1 in 50, less marked.	Not so marked.	1 in 100, distinct.
"	1 in 100, *nil*.	1 in 100, *nil*.	—

The above reactions show that the bacillus A very closely resembled the bacillus typhosus and that it was not nearly allied to the bacillus coli communis, the bacillus enteritidis, or the paratyphoid bacilli. We are inclined to think that to its presence in the distilled water the attack of typhoid fever was due. In any case the coincidence of the presence of such an organism in an article of drink used exclusively by the one member of a family attacked by typhoid fever appears of sufficient interest to be worth recording.

SOME REMARKS ON THE THERAPEUTIC ACTION OF THE IODIDES.[1]

BY JAMES BURNET, M.A., M.D. EDIN., M.R.C.P. EDIN.,
SENIOR CLINICAL TUTOR AT THE ROYAL INFIRMARY, EDINBURGH; REGISTRAR TO THE ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH; AND PHYSICIAN TO THE MARSHALL-STREET DISPENSARY, EDINBURGH.

THE iodides belong to that class of remedies familiarly known as alteratives, that is, drugs which influence nutrition in some undefined way and possess a definite effect upon the bodily metabolism. The iodides are derived from the non-metallic element iodine, and possess in many respects a somewhat similar action. The potassium salt is the one most frequently employed, and it is with special reference to its therapeutics that I wish now to speak. Iodine is a remedy of great antiquity, but its true therapeutic effects were probably not well recognised until after the beginning of the nineteenth century. It was, perhaps, as an antisyphilitic agent and as a remedy against scrofula that we find it most largely employed by those earlier workers. Ricord especially advocated iodide of potassium in syphilis, while Trousseau warned against its being prescribed in exophthalmic goitre. In France a remarkable paper appeared by Delioux in the year 1855 on the treatment of chronic rheumatism and gout by means of iodine. In 1879 Germain highly commended potassium iodide as a remedy in respiratory affections and as an agent which modified very definitely the bronchial secretions. Dieulafoy had already used iodine injections in the treatment of ascites and of purulent pleurisy and we find Trousseau following his method in cases of the latter disease. Balfour early in the "sixties" strongly advocated the use of potassium iodide in the treatment of aortic aneurysm and in this view he was supported by men like Bouillaud who had already in 1859 recorded cases of aneurysm successfully treated in this way. It is probably to Graves, a Dublin physician, that we owe the suggestion of using large doses of iodide of potassium in painful affections of the fasciæ and nerves. Such, then, is a very brief historical retrospect which might well be followed out more fully by any of you who are interested in the history of therapeutics.

I shall now pass in review some of the therapeutic indications which we have established for the use of the iodides, especially the potassium salt. And first, I think, we ought to look at its use in cases of aneurysm. Probably no single known drug acts so beneficially as does potassium iodide in this terrible affection. But what is its *modus operandi?* That is a question by no means easily answered. Balfour[2] maintains that "by the use of potassium iodide we lower the blood pressure sufficiently to enable the natural elasticity of the arterial coats to contract the aneurysmal sac temporarily." He further states that this remedy does not increase the coagulability of the blood but rather produces a greater fluidity. The aneurysm, according to this clinician, is cured not by the formation of solid coagula within the sac but by hypertrophy of the muscular coat where that still exists and of the adventitia, with concomitant contraction. Such, at all events, was the condition of matters found on post-mortem examination in all cases of aneurysm which he treated with iodide of potassium and which showed any measure of success. He also says that "*we may accept uniform dilatation of the arterioles as the cause of that lowering of the blood pressure which forms so important an element in the treatment of aneurysm.*" Now, let us for a moment consider these statements. First, as to the effect of potassium iodide on the coagulability of the blood. For my own part I believe that potassium iodide always tends to render coagulation of the blood more ready of accomplishment and that it is to the formation of a firm clot within the aneurysmal sac that the contraction of the latter is due in cases which are benefited by this treatment. In support of this view I would instance the results obtained from the administration of iodides in cases of hæmophilia. The cure here, if cure it can be called, is undoubtedly effected by this very blood-coagulating property of the drug in question. Then, again, when we come to consider the effect of iodide of potassium on the blood pressure we are bound, I think, to admit that Balfour's views are quite untenable but we must look a little more carefully at this interesting question before coming to a decision on the matter.

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[1] A paper read before the Therapeutical Society.

[2] Clinical Lectures on Diseases of the Heart. Third edition, p. 439.

The administration of iodide of potassium by the mouth has, in my experience, no effect whatever, either upon the pulse-rate or blood pressure within the arteries. It might be otherwise, however, were the remedy given hypodermically. Accordingly, with a view to determining this important matter I made use of iodipin injections in a variety of cases, including aneurysm, arterio-sclerosis, angina pectoris, asthma, and tertiary syphilis. Iodipin is a chemical combination of iodine and sesame oil. I always employed a 25 per cent. strength and found that it possessed the great advantage of being very tardily eliminated from the body after its injection under the skin, whereas iodide of potassium given by the mouth is all eliminated within 24 hours. Being a viscid, oily liquid it should be heated to body temperature before being injected and a serum syringe should always be employed having a capacity of from 10 to 20 cubic centimetres. The injections are best given under the skin of the abdomen, which is first, of course, thoroughly sterilised, and after the injection the puncture should be closed by means of surgical plaster. Another point to attend to in giving the injection is to avoid using massage which only tends to produce irritation and is, moreover, quite an unnecessary procedure. I found that a 15 cubic centimetre injection every second or third day was quite sufficient and very often I found that I could discontinue the iodipin treatment for intervals of a week at a time without detracting from its therapeutic effect. Now the result of this hypodermic method of administering iodides so far as the heart and blood-vessels were concerned was practically negative. In no case was the blood pressure altered, nor was the heart's rate or rhythm affected. Especially I found that the heart's action was never increased or depressed and that the pressure within the radial artery when markedly high to begin with was never lowered, even after a prolonged use of the iodipin injections. Still, all the same, I had good results in nearly all my cases, results which were achieved without that amount of gastric disturbance and loss of appetite which invariably accompany the prolonged oral administration of iodides.

Stockman[3] has already given us his own experience, although his paper refers more especially to the effects produced by potassium and sodium iodide when given by the mouth. He employed doses of 15 to 30 or 40 grains a day in a variety of conditions and found that in no case was any fall in blood pressure recorded or any change produced in the rate or the rhythm of the heart. He therefore concludes that iodide of potassium when given in therapeutic doses by the mouth does not modify the physical condition of the circulation, neither does it directly weaken the heart nor dilate the arterioles. This is exactly in accord with my own findings in the case of iodipin injections, although it is in direct opposition to the teaching of many text-books which maintain that potassium iodide has a definite effect in reducing blood pressure, and it is on this assumption, doubtless, that the majority of practitioners order it to be taken in cases of aneurysms, arterio-sclerosis, and allied affections. This, however, is to my mind erroneous teaching and will not stand the test of careful bedside investigation which, after all, is the best criterion, worth more than volumes of laboratory reports and animal experimentation. But we have not yet settled the question as to how it is that iodides act so beneficially in cases of aneurysmal dilatation. Probably it may be conceived that they do good by eliminating those poisons which have produced the arterial degeneration and by removing from the vessel coats the pathological material deposited upon them in the course of the disease. As a natural result the normal elasticity of the vessel walls is restored and the aneurysmal sac gets a chance to contract. Or, again, it may be considered that iodides cure aneurysm because the latter is a result of syphilitic infection and that by virtue of its antitoxic action on the syphilitic virus iodide of potassium does good. Unfortunately all aneurysms are not of syphilitic origin. I have seen cases where syphilitic infection was out of the question and all of you must be familiar with such examples. The antisyphilitic theory, therefore, is not supported by facts. I am inclined to believe that its sole effect is to aid in the coagulation of blood within the sac and I point to the value of potassium iodide in certain cases of hæmophilia in support of my opinion. Otherwise I am afraid we are still in the dark as to the true therapeutic action of iodides in cases of aortic aneurysm.

If we now look at the effect of iodides on arterio-sclerosis we find ourselves face to face with a similar difficulty. Within recent years Vierordt has asserted that iodides alleviate, and may even actually cure, vascular degeneration. He begins with small doses of two or three grains given two or three times a day and goes up to 15 grains thrice daily. He continues this administration for a period varying from one and a half to three years with occasional intermissions. His results have been uniformly excellent, even in cases, remember, which were non-syphilitic. He gave iodides on the assumption that they promote resolution of the sclerotic process in the blood-vessels. We also find Huchard advocating their employment in similar cases. He says[4] that iodides combine with their influence upon the peripheral and visceral circulation which they accelerate, upon the nutrition of organs which they render more active, and on arterial pressure which they lower, a no less important resolving action on the sclerosed tissue and vessel walls. He found by experiment with the manometer that after intravenous injection of potassium iodide in animals he obtained as much as from 10 to 40 millimetres of a fall in the mercurial column so far as the carotid artery was concerned. These falls in the mercury were produced in from 10 to 30 minutes after the injection of the drug in doses of 50 centigrammes per kilogramme of body weight. These results are quite at variance with those obtained by Boehm and more recently by Prévost, Corin, and Stockman in so far as the sodium salt is concerned. With potassium iodide it is otherwise, for Stockman finds that when it is given intravenously it has a marked depressant action on the heart. Small doses, however, produce a transient rise in blood pressure with slowing of the cardiac action. The depression is doubtless due to the effect of the potassium and not at all to the iodine contained in the salt. This intravenous effect, however, must be put out of account altogether, for we never administer iodide of potassium thus in practice. When we give this drug by the mouth it circulates in the blood in a very much diluted state and so cannot possibly depress the heart as it would do if injected into a vein when it would then reach the heart in concentrated form and so lead to its characteristic potassium effect, as Stockman is careful to point out. I have gone into some detail on those points as I wish to warn you against applying to clinical practice results which have been obtained on animals in a laboratory under artificial conditions and by means which are not employed in the practice of medicine at all. It is a pity that in these days laboratory experiment is so rapidly replacing the older fashioned but, to my mind, much more convincing bedside observation. At all events, I have taken the trouble to satisfy myself that even by the hypodermic injection of iodipin in cases of arterio-sclerosis no effect on the actual blood pressure is to be expected. If it does good in these cases it is, I think, by its power of elimination, thus enabling the blood to get rid of irritating matters and waste products and thus aiding in the readier circulation within the sclerosed vessels. Potassium iodide when given by the mouth is very rapidly absorbed and is probably largely converted into the sodium salt in the body.

In connexion with the problem of the action of iodides in cases of arterio-sclerosis I may perhaps refer to the question of how far the iodides affect the excretion of uric acid. They certainly tend to diminish it. Haig[5] found that if the excretion of uric acid was high it was at once reduced by the administration of iodide of potassium and that when the effect of the drug had passed off the excretion once more rose. He maintains that this lowering of urate excretion is not due to its destruction or elimination in other forms but to its actual retention in the body. The iodide probably renders the blood a bad solvent of urates, and so they are retained, but when the effect of the remedy has gone the blood takes up the urates again and accordingly they are *excreted by the urine in excess. In his* paper on the Effects of the Iodides on Arterial Pressure Haig[6] refers to their specific action in relaxing the arterioles and says that this result, together with the diuresis they produce, is contemporaneous with a diminished excretion of uric acid in the urine. His idea is that arterial pressure is not influenced by the iodides themselves but by their effects on the solubility of the uric acid and the amount of this substance present in the blood, and he bases this opinion on the fact that quite a number of drugs produce a reduction in arterial pressure together with a diminution in uric acid excretion. There is, I think, a good deal to be said in favour of this view of the action of the iodides in cases of arterio-sclerosis, although I think Haig *is quite beyond the mark in supposing* that the iodides affect the blood pressure. I am inclined, however, on the whole, to favour his uric acid excretion theory, as many cases of arterio-sclerosis, especially those of toxic origin, are benefited when iodides are given on this assumption.

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[3] Brit. Med. Jour., Nov. 22nd, 1902.

[4] Maladies du Cœur et des Vaisseaux, Paris, 1899.

[5] Uric Acid in the Causation of Disease, London, 1903.

I wish to say a word or two now regarding the employment of iodides in cases of angina pectoris. I am of opinion that to be of any real service the patient should have from 30 to 60 grains per day and that this administration should be kept up for months. A patient under my care some time ago for the disease was given one and a half drachms of iodipin in warm milk three times a day for periods of a month with a week's interval between for a year. During that time he had no attack, although previously he had one on an average every four or five months. Huchard, whose knowledge of heart affections must be considered very extensive indeed, did not hesitate in severe cases to give as much as from 12 to 15 or even 20 grammes of iodide of potassium in a single day. This may be by some regarded as heroic treatment but I think it was fully justified by the results obtained. Arterio-sclerosis, which is so often present in these cases, is not necessarily a source of heightened blood pressure. Rolleston[7] points out that the iodides in such cases act by stimulating the secretion of the thyroid and not by their depressant effect upon the circulation. In this connexion I may refer to a paper by A. Fraenkel[8] in which he says that the pathology of angina pectoris is to be found in a sclerosis of the coronary vessels, the angina occurring in the course of syphilis, gout, and aneurysm being due to this. In other cases a spasm of the smaller vessels of the heart produces an anæmia and the pain thereupon ensues. This spasm, which is probably the source of every attack of true angina, is relieved by the use of iodides, of which the author prefers the sodium preparation as less likely to interfere with digestion. This view of the treatment of angina by means of iodides is, I think, a very rational one and is to some extent in accordance with my own opinion to which I shall presently refer—namely, that iodides relieve angina by their specific antispasmodic action.

Passing now to the *consideration of the therapeutic* action of the iodides in cases of respiratory disease we find ourselves on less uncertain ground. I may say that it is with this sphere of their action that I am most familiar. In chronic diseases of the respiratory system I know of only two or three remedies which may be absolutely relied on and one of these is the iodide of potassium. Some three years ago, while *I was engaged in making a series of observations* on pulmonary fibrosis as met with in stone-masons, I found that the two drugs which were of most value were iodide of potassium and ichthyol. With these two remedies alone I was often able to alleviate the symptoms very materially indeed. When the dyspnœa which in such cases generally results from emphysema becomes a marked feature of the case then iodides given regularly *over a somewhat prolonged* period almost always afforded relief from this distressing symptom. Here it was that I first discovered the superiority of iodipin over iodide of potassium. Its action is more prolonged as its elimination is more gradual than that of the potassium salt. It is also absorbed much less rapidly and so tends to have a more uniform effect upon the tissues with which it is brought into contact. After administrating iodipin for some time traces of iodine may still be found in the urine many weeks after the treatment has been stopped. It is stated that iodipin is practically not split up in the stomach but is absorbed from the intestinal canal. The iodine, however, apparently remains firmly adherent to the fatty acids and probably only a minute quantity is given up owing to the alkaline action of the intestinal juices. The greater portion of the iodipin is oxidised in the body and when this oxidation takes place all the iodine separates out as iodide. This oxidation, however, is slow and compared with iodide of potassium the elimination is, as I have already remarked, more protracted. For these reasons I prefer it in all cases of respiratory disease. The 10 per cent. strength can be given in one or two drachm doses by the mouth, mixed with a little warm milk, three times a day, or the solid form of iodipin may be employed. The latter is a brownish-coloured substance and may be had in rather large, sugar-coated tablets. The solid form gets rid of the objection which some patients have to the oily liquid. Roughly speaking, one drachm of 10 per cent. iodipin is equivalent to eight grains of potassium iodide. But not only do the iodides relieve the dyspnœa in cases of the kind referred to but they have an additional and very valuable therapeutic effect. I find that all these cases of pulmonary fibrosis complain of distressing cough and difficult expectoration most marked in the early morning. In such cases I always obtained the best results by giving a full dose of iodipin at bedtime. By this means the contents of the bronchial tubes are liquefied and expectoration is thereby facilitated. The remedy should, I think, be given on an empty stomach in order to obtain the best results.

In chronic bronchitis, too, especially in elderly patients, the iodides are extremely valuable if given half an hour before meals in a small amount of water, not, as is sometimes advised, a glassful. Here, again, a single large dose of, say, 15 grains given at bedtime acts like a charm. I have heard it stated that it is folly to give so depressing a remedy to old people, but *so far as my experience goes* nothing but good results follow when it is given in this way. Sometimes it may be given thrice daily in smaller doses, say, five grains, but I do not think the result is then quite so satisfactory or striking. I have known it produce in certain cases, especially when given regularly three times a day, a considerable amount of gastric disturbance. This is probably due to a condition of hyperchlorhydria and I have often been able to alleviate the stomach trouble by combining ammonium carbonate with the iodide. Asthma of true bronchitic origin is, again, a disease in which the iodides are often of great service. They are best given here in fairly large doses, say 10, 15, or even 20 grains every two or three hours for some time. Haig[9] holds that iodides relieve asthma by clearing the blood of its contained uric acid and so reducing the blood pressure and the resulting congestion in the area of the bronchial arteries. My own view is that in this disease the iodides have a real antispasmodic effect, probably by virtue of their action, when given in full doses, upon the nervous mechanism. I have often wondered if this theory might not explain the good results which one so often sees following the administration of potassium iodide in cases of angina pectoris, when given continuously in fairly large doses between the paroxysms. In the treatment of bronchitic asthma, as indeed also of angina, it is well to bear in mind the possibility of securing more lasting effects by substituting *iodipin and even in the worst* cases by giving the latter hypodermically. I think that in every case of asthma there is always a certain amount, sometimes a considerable amount, of associated spasm of the bronchioles, and when this is relieved, as I maintain it can be, by iodides, then the disease may be said practically to be cured. The probable antispasmodic action of the iodides is one which, at all *events, deserves careful* clinical investigation in a large number of cases before it is set aside as untenable. In bronchitic asthma, at any rate, the iodides may be confidently relied on to produce good results if properly administered. I mentioned their use in the emphysema associated with pulmonary fibrosis but they are equally beneficial in the emphysema which results from chronic bronchitis.

Turning to the administration of iodides in syphilis, we find them most advantageous in cases where the mucous membranes, bones, and nervous system are involved. I need not dwell long on this field of iodide administration as it is so familiar. I would, however, emphasise the fact that the hypodermic treatment of syphilis in this country is not very actively carried out. I firmly believe that by early hypodermic mercurial treatment combined with systematic and very thorough inunctions continued over a prolonged period with intermissions we would be able to secure absolute immunity from all the so-called tertiary manifestations of this disease, such as glossitis and vascular changes, together with the numerous spinal and cerebral affections so commonly met with in practice. So, too, in the treatment of tertiary syphilis I am a strong upholder of the hypodermic method of treatment, and here I am fond of using the 25 per cent strength iodipin. Of course, this means a little extra trouble on the part of the physician, but the results secured will repay the additional time expended on the treatment of these cases. I do not, of course, for a moment suggest that the oral administration of iodides is without effect but I do maintain that it is not so lasting in its results or so quickly successful as when the hypodermic plan of treatment is followed. Large doses ought certainly to be given in syphilitic cases, and especially in nervous lesions, notably locomotor ataxy. In the last-mentioned disease I have given as much as 120 grains of iodide of potassium in 24 hours with very marked benefit. The patient actually put on weight under its administration and lost altogether his troublesome gastric attacks which he complained of specially when he first came under observation. These are the cases in which I think we ought to try iodipin injections, and when opportunity offers I intend to try this method of treatment. Already I have found it succeed admirably in a case of syphilitic cephalalgia attended by twitchings of the left hand which I attributed to pressure of a gumma. The twitchings ceased entirely after the tenth injection, and the headache was distinctly lessened after the third. The effects of iodides on late syphilitic lesions is probably simply due to their eliminating action, but it must not be forgotten that iodides have been, and are still, employed as antitoxic agents. For example, Tarnier employed them in the treatment of puerperal fever and for purposes of disinfection, while Donard used iodide of potassium as a remedy in cases of intermittent fever, and others have used this drug with success in the treatment of erysipelas. It is probable, therefore, that the iodides have a twofold action in cases of tertiary syphilis, first of all, by producing an antitoxic effect, and secondly, by bringing about a more or less rapid resolution of the products of the disease. We must, however, give the iodides in full doses here so as to bring the patient thoroughly under their influence, otherwise they cannot be expected to do much good. By leaving off the administration at intervals and by gradually increasing the dose the patient's tolerance of the drug can usually be guaranteed.

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[6] Transactions of the Royal Medical and Chirurgical Society vol. lxxvi.

[7] *Clinical Journal*, June 21st, 1905.

[8] Deutsche Medicinische Wochenschrift, 1905, Band xxx., S. 571.

[9] Op. cit.

The treatment of chronic rheumatism by means of iodides is a matter of some little interest. For my own part I believe that the iodides do good in these cases by virtue of their effect upon the uric acid excretion. If we give iodides to a patient who is suffering from chronic rheumatism, or from such conditions as sciatica, lumbago, or neuralgia, produced by exposure to cold or wet, and whose urine is acid, then we find that very soon after we have begun our treatment the urine becomes less acid and may even tend to become alkaline in some cases. Haig calls attention to this fall in urine acidity accompanying diminution of uric acid excretion produced by the iodides. He suggests that the retention of uric acid produced by iodides may be the result of some effect upon the phosphates of the blood, although he admits that there are no known chemical data which support his opinion. In cases of chronic rheumatism I prefer to combine the iodide administration with salicylates, the latter acting by eliminating the uric acid while the iodides prevent the uric acid combining with an alkali in the blood. In this respect I am a disciple of Haig, who maintains that it is this combination of uric acid with an alkali or with neutral phosphates in the blood which produces all the physiological and pathological effects which he has been led to attribute to uric acid. (I am here practically quoting Haig's own words.) Small doses of iodide of potassium suffice in cases of chronic rheumatism. Five to ten grains given thrice daily in soda or potash water is a sufficient amount

I can only refer to the use of iodides in cases of effusion. They act here by elimination and are of very great service. Their beneficial effect is also manifested in all kinds of chronic inflammation. In cases of interstitial nephritis iodide of potassium has been tried with some success. It acts by virtue of its diuretic power and should be given in doses of from ten to 30 grains, or even more, three times a day well diluted. Hepatic cirrhosis is likewise a disease which sometimes improves under iodide treatment. Then, again, in cases of metallic poisoning, notably lead and mercurial poisoning, iodides may be confidently relied on to do good. In chronic metallic poisoning we find the metal accumulating in the body by reason of its affinity for albuminoids. During the constant metabolic changes going on within the body the poison is set free. When we give iodides in such cases we find that the metal breaks away from the albuminoid substances and is eliminated in the form of insoluble salts.

And now, lastly, a word or two as to the employment of the iodides in cases of goitre. Kocher, in a paper which I cannot now lay hold of and which was published a year or two ago, found that when the thyroid gland was normal it took up the iodine when iodides were administered and eliminated it rapidly again. This was not so when the thyroid was diseased. In some cases he found that an abnormal amount of iodine was taken up by the gland and eliminated in excess, while very often in these very cases signs of iodism were observed. He advised that iodides should be given very early in cases of thyroid enlargement and in small doses. Sometimes good results were obtained but, on the other hand, the treatment was often unsuccessful. In cases of exophthalmic goitre iodide of potassium is sometimes employed in the hope of reducing the circulatory force, but Trousseau distinctly warns against its employment in this disease. I think, however, that I have had good results from its adoption in at least one case, although I cannot say that it slowed the pulse or checked the severe palpitation from which the patient suffered. I think if it does good in these cases it must be by its direct action upon the gland itself the function of which has probably become materially affected by the disease process.

Such, then, is a very imperfect survey of some of the therapeutic uses of the iodides. We know comparatively little of the rationale of their action, but at all events I think we are able to formulate certain working hypotheses which are helpful in actual practice. Our lack of knowledge is largely owing to our neglect of clinical experiment and observation. Even the every-day country practitioner may discover new uses for old remedies and fresh reasons for their employment because he is daily working in nature's medical laboratory—the sickroom. The history of the employment of the iodides is largely a history of the progress of medicine, for doubtless we can conceive, for example, of their being first used empirically in the treatment of cough, until one day it was discovered that the cough was associated with emphysema and so they became the favourite in the treatment of this disease. Yes, we may now order the iodides somewhat ignorantly but one day we will by patient effort obtain more light on their therapeutic action in disease.

I think it is a pity that we do not employ the sodium salt more frequently than we do. It is less likely to interfere with digestion and is quite as efficacious as the potassium is. It is well also to bear in mind that the hypodermic administration of the iodides in the form of iodipin is a useful adjunct to treatment, notably in syphilitic disease of the nervous system and in all chronic inflammatory conditions. It possesses the advantages of being more intensive in its action, less upsetting to the stomach, and requiring less frequent administration. Perhaps some of you who have listened so patiently to my remarks may feel that I have added little to your knowledge of the therapeutics of the iodides but I trust that at least I have been able to awaken renewed interest in the subject and have given some of you an impetus to further study which some day will bear fruit in the shape of added knowledge on a subject which at present is beset with untold mysteries.

Edinburgh.

BORIC ACID IN FOOD.—At the Bradford-on-Avon (Wiltshire) petty sessions, held on August 29th, a tradesman was fined £5 and costs for selling milk containing at least 20 grains of boric acid to the pint.—At Camborne (Cornwall), on August 21st, a grocer was summoned for selling adulterated German sausage. Analysis showed that the sausage contained 45 grains of boric acid to the pound. The defendant stated that the German sausage was manufactured in England. After some discussion the magistrates fined defendant 1s. and costs, and stated a case for appeal, the chairman remarking that it would be as well to know what quantity of boric acid was permissible.

THREE CASES OF TWISTED PEDICLE.

By W. GREENWOOD SUTCLIFFE, F.R.C.S. Eng.,
HONORARY SURGEON TO THE ROYAL SEA-BATHING HOSPITAL, THE MARGATE COTTAGE HOSPITAL, AND THE VICTORIA CHILDREN'S HOME, MARGATE.

The first case, seen with Dr. A. Warwick Brown, was that of a child barely 15 years of age who had been under his care for some days as one of a group of cases of epidemic roseola when she was seized at night with abdominal pain on the right side, coupled with tenderness and a temperature of 100° F. On the next day the bowels acted normally, the pain subsided, but the temperature rose again to 100° at night. On the following day (June 13th) I saw her with Dr. Brown. We found the tenderness less and no definite lump or swelling in the abdomen; the tongue was furred. There had been occasional retching and an enema given earlier in the day had not been returned. The temperature was 100·6° and the pulse was 90. The case presented the symptoms of a mild attack of appendicitis and as the symptoms appeared to be subsiding we thought it best to wait before deciding on operative interference. On June 14th there was a large dull area in the right iliac fossa. The temperature was 101° and the pulse was 100. An enema given two hours previously to the consultation had been ineffective and the child was obviously a little worse than on the day before. An operation was accordingly decided on and, acquiesced in by the parents, took place the same afternoon. The diagnosis being appendicitis the oblique intramuscular incision was adopted and though some blood-stained fluid was present in the peritoneal cavity the cæcal region was soon seen to be normal. At the lower angle of the wound a thin-walled cystic tumour was discovered and this, examined after prolonging the wound downwards, was found to spring from the left broad ligament. The cyst was tapped and delivered; its pedicle, to which the ovary was attached, was twisted three or four times on itself and the ovary was in a highly engorged and hæmatomatous condition. The pedicle was tied off and the ovary and cyst (a thin-walled unilocular specimen) were removed. The abdomen was sewn up in layers and the patient made an uninterrupted recovery.

The case resembled so closely an attack of appendicitis and the patient was so young that the possibility of ovarian disease was overlooked until actually preparing for the operation, when the ovarian instruments and ligatures were put out as a matter of routine. There was very little extra difficulty on account of the position of the incision as there were no adhesions to be dealt with.

The second case, that of a working girl, aged 21 years, is of interest solely because it forms one of a series of three similar conditions seen in a few weeks. On the night of July 9th the patient had an attack of violent abdominal pain, localised after a time to the lower part and right iliac fossa, with frequent attacks of vomiting. I was sent for early on the 10th; there was then to be made out a fluctuating tender tumour, slightly moveable, and nearly median, extending from the pubes to a little above the umbilicus. Per rectum the uterus could be felt displaced backwards and downwards by the swelling which filled up the pelvis. There was a history of occasional spasms of pain in the lower part of the abdomen for about a week but the girl had kept on with her work until the night before when she had to give in. The temperature was 99·2° F. and the pulse-rate was scarcely at all accelerated. She was removed to the Margate Cottage Hospital, some three miles off, and I operated the same afternoon. The cyst was exposed, tapped, and brought out through the usual median incision. The pedicle was twisted three times on itself, so that the cyst, which sprang from the left broad ligament, was inclined to the right side. As in the previous case, the cyst was unilocular and the ovary, intensely congested and inflamed, was adherent to its base. There was no adhesion of any sort. The pedicle and the abdomen were treated in the usual manner and the patient recovered without any unusual symptoms.

The third case was that of a single woman, aged 48 years. The patient was sent to me by my friend Mr. E. Moon of Broadstairs. She was a more than usually voluble Irishwoman who went to him a week previously to my seeing her and complained of pains in her right hip which she ascribed to rheumatism and refused any suggestion of examination. Four days afterwards she took to her bed and Mr. Moon was sent for. She then had intense abdominal pain, especially in the right iliac region, where a hard swelling could be felt but as she still objected strongly to any sort of examination no real diagnosis was made. The bowels not having acted for several days enemata were given on that and the next day, but without result. On the evening of July 17th the patient was admitted to the Margate Cottage Hospital and then had the following appearances. The whole abdomen was tender and though any attempt at manipulation was intensely painful a hard mass could be felt in the right iliac fossa and a sense of resistance extended from it to well to the left of the middle line. Per rectum the cavity was found compressed by a hard mass occupying the pelvis and the uterus was not made out. The temperature was 101° F., the pulse was 100, and the patient was obviously very ill. Operation was proceeded with almost at once and the mass in the right iliac fossa becoming very definite when the patient was under the anæsthetic it was decided to incise through the sheath of the right rectus so as to come directly on the swelling. There was a considerable amount of blood-stained fluid in the abdomen and the swelling when disclosed was found to lie on the right pelvic brim and to project on the cæcum and appendix, to both of which it was attached by loose adhesions. These were easily separated and the growth was brought out of the abdomen. It was then seen to be a semi-solid ovarian cyst connected with the right broad ligament with a pedicle twisted into a knotted rope-like cord. The pedicle above the twist and the tumour were blackened and congested from the effects of the torsion, and there was a good deal of oozing from the bed it had made for itself. The pedicle having been tied and the tumour cut away the pelvis was examined and a large white walled semi-fluid tumour was found blocking up the whole pelvis. Its connexions were only made out after freely enlarging the incision in both directions. It sprang from the left broad ligament, pushing the uterus against the pubes; it filled out completely the retro-uterine pouch and its wall was adherent to, and continuous with, the peritoneum covering the upper part of the posterior vaginal wall. On the right side there were adhesions to the right broad ligament which was flattened out against the pelvic wall. The tumour was tapped and a large quantity of dermoid contents was let out but it still remained of considerable size and a tedious separation of adhesions followed by some force was necessary before the tumour was eventually brought out of the abdomen. The pedicle, mixed up with firm adhesions on the left side, was unsatisfactorily defined and the removal of the tumour was followed by some smart hæmorrhage. A search of the left broad ligament for its sources followed; these branches of ovarian vessels were discovered and double ligatured, the remains of the Fallopian tube were removed, some more bleeding points were dealt with, and after the insertion of a large rubber and gauze drain the abdominal wall was closed. From the drainage-tube left in for 36 hours some blood-stained serum, possibly a few ounces, was discharged. On the next day the patient's temperature was 100·6° and the pulse was 120, but there was neither vomiting nor distension, and a large enema on the second morning followed by a dose of magnesium sulphate on the third were each effective in relieving the bowels of their eight days' accumulation. The patient's progress after that was uninterrupted and uneventful.

The patient was entirely oblivious of the presence of these tumours, her only previous illness being occasional epileptic fits. The right tumour proved also on examination to be of a teratomatous character, containing, besides the usual semi-solid contents of such tumours, a quantity of iron-grey hair. It was of the size of a large lemon and was unilocular. The larger specimen from the left side was multilocular, each cavity containing hair, teeth, and the usual thick liquid. There were also nipple-like projections from the walls of two of the three chambers into which the cyst was divided by well-marked partitions. When full the cyst was nearly the size of a man's head.

In this case the gradual enlargement of the left cyst had pushed its companion out of the pelvis where in its endeavour to settle down comfortably the torsion of the pedicle had been brought about, giving rise to the already quoted pains in the patient's right hip, which was the first recorded symptom of the presence of the tumours. Bilateral teratomata are described in text-books as "occasionally" occurring, but they certainly form a sufficiently rare variety of the acute abdomen to deserve recording.

I have to thank my colleagues, Dr. R. Thomson and Dr.

J. L. Sawers, for their assistance in dealing with the first and third of these cases, and Mr. B. Moss for assisting me with the second and anæsthetising the third.

Margate.

A PRESUMED CASE OF ACUTE YELLOW ATROPHY OF THE LIVER.

By W. CURLING HAYWARD, M.B., B.S. DURH., M.R.C.S. ENG., L.R.C.P. LOND.,
DIRECTOR OF THE GOVERNMENT HOSPITAL, PORT SAID.

SOME weeks ago I saw in THE LANCET the report of a case of supposed yellow atrophy of the liver. I have had a very similar case in my practice here and I think that, as these cases are so rare, when one occurs it should be put on record. My case is as follows.

On May 27th I was asked to see a case of jaundice in consultation with another medical man. The patient was a male Arab, aged 40 years, of fine physique and intelligence. He had been ill with jaundice for eight days. His family history was good; his habits were also good; he was a non-drinker and non-smoker. The patient began to feel ill on May 19th, eight days before I saw him. The onset was sudden; there was a slight rigor, with malaise, vomiting, and fever. He took a purge, as is the custom with natives, but this did him no good. Next day he saw that his eyes were yellow, his urine was dark, and that his stools were clay-coloured. He saw a native doctor who gave him a dose of some medicine and a blister for his stomach. The jaundice and vomiting increasing he sent to the hospital. My assistant, Dr. Obarawy, went to see the man, and thinking the case was one of simple catarrhal jaundice he gave the patient a saline draught and prescribed a liquid diet. No improvement taking place I was asked to see the sick man. When I arrived at the house I saw him sitting on his bed cross-legged, which position gave him most relief. There was deep jaundice of the conjunctivæ, the skin had a bronzy tinge, and the man looked ill. He complained of some headache, some abdominal pain, and loss of appetite. I took the temperature and found it to be 99·5° F., the pulse was 88, full, regular, and soft, the tongue was furred, and the breath was foul. I then proceeded to make an examination but found nothing. The spleen was not enlarged, the kidneys were normal, no gall-bladder could be felt, and no tumour in any part of the abdomen. The chest was free from disease. On percussing the liver there was some tenderness in the intercostal spaces, but the only painful spot was in the epigastrium, and that was caused probably by the previous treatment. On making a very careful examination of the liver dulness I could not say for certain that there was any decrease of its size and my assistant also could not say for certain. I also treated the case as one of simple catarrhal jaundice. I took away some of the urine to examine, more for experimental purposes than any other reasons. When I had evaporated a drop on a slide and examined it under my microscope, to my great surprise I saw large masses of tyrosin crystals and leucin plates. Then I saw the nature of the case that I had to deal with. Later in the evening I heard that the man was feeling better and his vomiting had stopped. Next morning I was sent for hurriedly. On getting to the house I heard that the patient had become delirious in the night and had tried to throw himself out of window. I then went into the room, the man did not know me; he was lying on his bed apparently asleep. I spoke to him but he refused to take any notice of me, so I tried to turn him towards the light, but he seemed to dislike the light and closed his eyes tightly. He refused to let anyone touch him and refused all food. The friends asked me to take him into the hospital as they could do nothing with him. I did so and in the afternoon I saw the patient in the ward. He again refused to let me examine him and became so violent that I had to put him in a special ward and give him an injection of hyoscine. He became quiet, and after four hours' rest he took some food. I noticed that the jaundice was increasing; there was no vomiting, however, so no medicine was given to him. When the nurse left the room for a minute the man got up off the bed and passed his urine on the floor, although there was a urinal in the corner. During the night the man became very noisy and the resident physician was called and gave him another injection of hyoscine. This acted for some four hours and when dawn came the man became quiet. This quietness was the onset of coma, for as the day passed the patient fell into a light sleep, and when his friends came to see him, though he could be roused, he did not recognise anybody. As the man was now lying on his back I made a very careful percussion of the region of the liver. This gave the following results. Dulness below as far the costal margin, upwards as far as the eighth rib in the nipple line, and in the axillary line as far as the seventh intercostal space. The diminution was very marked. The man's friends refused to let him stay in hospital; so I was compelled to let them take the patient out, although his condition was critical. I heard next day that the man died in coma early that morning. I at once sent my assistant to ask if the friends would allow a small post-mortem examination to be made, but they refused.

From the foregoing short account of this curious case it will be evident that it was not a typical one of simple catarrhal jaundice. My reasons for thinking it was one of acute yellow atrophy of the liver are: the very rapid termination of the case in coma; the rapid diminution of the size of the liver; the early onset of delirium, this coming on after only ten days' illness; and the presence of leucin and tyrosin in the urine, although Osler says this is not an invariable symptom. The symptom of vomiting was not a very marked one and soon yielded to treatment. There was no constipation; the original purge that the man took seems to have kept the bowel moving.

Curiously enough, my colleague here, Dr. E. Cuffey, came to me some few days after my patient had died and told me of a very similar case to mine that he had had in his private work here. So similar was it that I thought he was describing my own case, but as his patient died some days after mine there can be no doubt that there have been two cases of what we suppose to have been acute yellow atrophy of the liver in this town within a few days of each other.

The rarity of these cases must be my excuse for sending you this record.

Government Hospital, Port Said, Egypt.

A PRELIMINARY NOTE ON A NEW SPIROCHÆTA FOUND IN A MOUSE.

By ANTON BREINL, M.D.,
ASSISTANT LECTURER, LIVERPOOL SCHOOL OF TROPICAL MEDICINE;
AND
ALLAN KINGHORN, M.B. TORONTO,
JOHNSTON COLONIAL FELLOW, UNIVERSITY OF LIVERPOOL.

(From the Runcorn Research Laboratories of the Liverpool School of Tropical Medicine.)

THE spirochæta described below was found in the blood of a white mouse infected with *Trypanosoma dimorphon*, which was sent from Paris by Professor Laveran, and we take this opportunity of expressing to him our sincere thanks for permission to publish these observations.

In the fresh, the spirochæta imparts a movement to the red blood cells similar to that found in the case of other spirochætæ. The parasite is very small, translucent, and actively motile, and shows both a movement of the spiral turns and a progressive movement of the whole organism between the blood cells. It stains readily with any of the aniline dyes and all the modifications of Romanowski and then appears as a short, plump, uniformly-stained spirochæta. Long and short forms occur, measuring between 1·8 and 3·75μ in length and 0·1 and 0·2μ in breadth. The number of spirals varies between two and four and there is also a variation in the size of the spirals in different parasites. Both ends are drawn out to a point, one usually more abruptly than the other.

The parasites were very scanty. In the fresh, only one or two were seen in a preparation, while in the stained one spirochæta in from 20 to 40 fields (Zeiss, oc. 4, $\frac{1}{12}$ oil immersion) was counted. Attempts to transmit the spirochæta to other mice have been unsuccessful so far.

We have been unable to find in the literature any reference to a spirochæta of mice. Vandyke Carter[1] describes a spirochæta observed in an Indian rat but this is longer and possesses more spiral turns than the one described above. As this appears to be a distinct species, we propose for it the name "*Spirochæta Laverani*" (*n. sp*).

Note.—Since writing the above, a spirochæta of identical appearance with the one described has been found in the blood of a wild mouse, *Mus musculus*. Transmission experiments with this parasite are now in progress.

A CASE OF INTUSSUSCEPTION, ILLUSTRATING THE FALLACIES AND DANGERS OF THE "INFLATION" TREATMENT.

By J. L. FALCONER, M.B., CH.B. VICT.,
RESIDENT MEDICAL OFFICER, MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY.

A MALE child, aged ten months, was admitted to the Manchester Children's Hospital, Pendlebury, on the evening of Dec. 1st, 1905, under the care of Mr. E. D. Telford, to whom I am indebted for permission to publish the case. The previous history, furnished by the medical man who attended the case outside, was as follows. On Nov. 15th the child started screaming and bearing down and passed about half an ounce of pure blood. On examination per rectum the finger returned covered with blood. No tumour was felt and nothing was recognised on abdominal examination. Blood stained mucus was passed on the next day and on the 17th a tumour was felt per rectum. The child was anæsthetised and the bowel was inflated with water from an elevation of two feet. The tumour moved rapidly up the left side of the abdomen and apparently disappeared. The child was rather collapsed after the operation but soon recovered and passed natural stools. Improvement was maintained till the 21st when the child was noticed to be straining and passing mucus. On examination the intussusception was again felt at the anus. The treatment by water inflation was repeated and the intussusception was apparently reduced. The child continued well next day, but on the 23rd the tumour was again felt in the rectum and water inflation was again resorted to. After this the child continued well until the 29th, passing motions with more or less mucus in them. On this day a mass was felt in the left hypochondriac region, although nothing could be felt per rectum, but on the 30th it was again felt per rectum. The abdomen was distended and the child was developing a typical abdominal facies. On Dec. 1st the patient entered Mr. Telford's wards.

On admission the child was found to be very quiet and lethargic, making no resistance to examination. He looked ill, with very sunken eyes surrounded by dark rings, presenting a marked "abdominal facies." The abdomen was slightly distended and tympanitic on percussion but moved fairly well with the respirations. The recti were somewhat resistant but there was no evidence of tenderness on palpation. No mass could be felt through the abdomen, nor was there any vomiting. The child had a normal stool soon after admission. Examination per rectum revealed moveable gut, with the ileo-cæcal valve forming a tight ring at the apex of the intussusception; the whole mass could be freely pushed away by the examining finger. No blood was seen on the finger after withdrawal.

The following operation was performed by Mr. Telford one hour after admission. The abdomen was opened by a three inch incision through the right rectus muscle; a mass was found low down in the pelvis and at first the invaginated gut was withdrawn fairly easily but soon a portion was reached where the intussusceptum had sloughed right through the intussuscipiens and was surrounded by a localised peritoneal abscess. The mass was then rapidly cut away and the divided ends of the bowel were fixed together in the upper angle of the wound; a rubber drainage-tube was inserted down to the collection of pus and the remainder of the incision was closed.

No cause was found for the origin of the intussusception, which was of the ileo-cæcal variety. Considerable shock was present after operation but this was partly recovered from under strychnine, ether, and saline infusions. The child, however, again collapsed somewhat suddenly and died 10 hours later.

Comments by MR. TELFORD.—The case illustrates the very unsatisfactory nature of inflation treatment; such treatment should be discarded for the following reasons:—

1. *Danger of perforation.*—This may occur early when too much fluid is used or later when a plastic peritonitis has ensued. The constricted and sloughing gut may ulcerate into the general peritoneal cavity if operation is delayed. Inflation at this stage materially increases the risk of rupture of the gut.
2. *Uncertainty of the method.*—The case reported shows well how an apparently satisfactory result at the moment may be quite misleading; probably the last inch of the intussusception is never reduced, as this portion always gives difficulty even on laparotomy when the gut is in the surgeon's fingers.
3. It obviously can be of no use in any variety beyond the ileo-cæcal; the ileo-colic and enteric forms cannot be affected by it.
4. It cannot succeed when plastic peritonitis has ensued and therefore can be of use (if at all) only in the very early stages.

The treatment by inflation is to be condemned on the above grounds; also because it wastes most valuable time and seriously imperils the prospect of a subsequent laparotomy with manual reduction which is the only reasonable treatment. It may be stated that when an acute intussusception has existed for 30 hours recovery after any line of treatment whatever is very unusual and therefore the patient in every case should be subjected to rational and scientific surgery without delay.

Pendlebury.

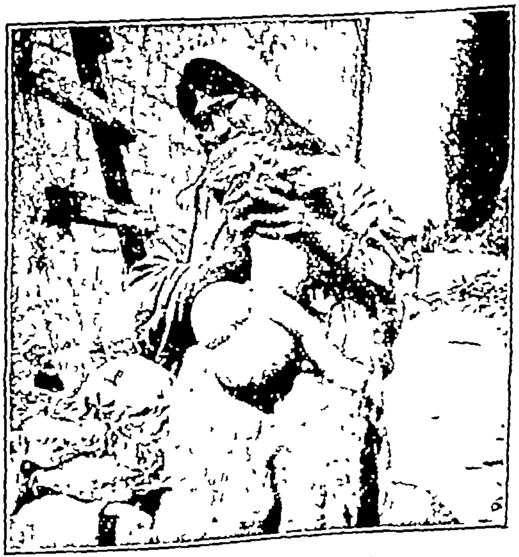
Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

SUCCESSFUL REMOVAL OF A LARGE HYGROMA IN A CHILD AGED THREE WEEKS.

By J. CROPPER, M.A., M.D. CANTAB.

IN June, 1905, I was consulted by a Moslem woman about her child, aged three weeks, who had a very large hygroma of the sacral region, of which I inclose a photograph. As the nature of the growth was not certain, and as the skin over it was reddened and threatened to slough, Dr. P.



Appearance of child before operation.

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[1] Vandyke Carter: Note on the Occurrence of a Minute Blood Spirillum in an Indian Rat. Scientific Memoirs by Medical Officers of the Army of India, Part III., 1687, p. 45.

Wheeler, of the English Hospital in Jerusalem, agreed to admit the child for operation. An exploratory puncture revealed a thick, brownish fluid and hygroma was diagnosed. Having fully explained the risks of leaving the growth as it was and also of operation, the friends made all preparations for the funeral, having before this made up their minds that the child could not survive in any case. After some days in hospital I removed the growth under chloroform by two elliptical incisions, leaving abundant flaps. The contained fluid measured over three pints. The need for speed was quite as great as in pre-chloroform days, for though the loss of blood was not great there was sudden collapse from which, however, the patient rallied. The size of the incision may be judged from the illustration; it extended downwards to the anus. The edges were quickly brought together by sutures, few vessels needing ligature. The lower end of the wound healed by first intention, the upper part oozed for some time, but at no time was there any serious rise of temperature. A minute sinus remained for a while after this. No attempt was made, of course, to remove the hygromatous mass firmly adherent to the sacrum. When seen ten months later the child was doing well so far as the operation went, but was considerably pulled down by fever and had an enlarged spleen. It would, of course, be possible at a later date to produce a more "cosmetic" effect. I have to thank Dr. Wheeler for admitting the child and for his help at the operation.

Ramallah, Jerusalem.

RECOVERY AFTER TAKING OVER 40 GRAINS OF PERCHLORIDE OF MERCURY.

By PELHAM C. MAITLAND, M.R.C.S. ENG., L.R.C.P. LOND.

IN answer to a hasty summons from a much perturbed husband to come at once to see his wife, who had swallowed some poisonous tabloids, I found she had dissolved five tabloids of hydrargyri perchloridum in a cup of water and drank the whole. This would amount to 43¾ grains, each tabloid containing 8·75 grains. This, from searching inquiries and questionings, I have not the slightest reason to doubt was true. I took away the cup with the drainings and found after testing with iodide of potassium a plentiful precipitate of biniodide of mercury. They were the ordinary tabloids, given by another medical man for injection. I found the woman very ill, quite prostrate, vomiting, with abundant diarrhœa. At once, after finding out the nature of the case, I gave about four ounces of carron oil made with oleum morrhuæ as the only oil available quickly. This I followed with one ounce of vinum ipecacuanhæ. I then dispatched the husband for eggs and milk. These being obtained after a time, the whites and milk were given. As there was such a large quantity of the poison I feared the after effects and gave rather a bad prognosis. I was compelled by engagements to leave the case, but I told the husband what to do, and if necessary, or in certain circumstances, as severe prostration, to call in another medical man, as I could not return that night. On the next morning I found the patient—in spite of some pain and prostration, due partly to the remedies employed—comparatively convalescent. In a day or two, with bismuth and tinctura opii and emollient feeding, she quite recovered.

Shepherd Market, Mayfair, W.

NOTE ON A CASE OF BRADYCARDIA.

By CHARLES EDMUND MCDADE, M.D. R.U.I., D.P.H.

THE following note on a case of bradycardia unattended with any manifest disease and ending in recovery may prove interesting.

The patient was a man, aged 72 years, who had led a very active life as a public speaker. His health had been good until recently and his family history was also good, with longevity on the maternal side. In July, 1904, he complained of slight giddiness, which yielded to soda, nux vomica, and carminatives. His pulse was then 65 per minute, strong, and regular; his tongue was clean, his appetite was good, and his bowels were regular. The following February he had the same trouble, which soon passed off with the same treatment. On June 2nd I saw him again. His pulse was now 40 per minute, but strong and quite regular. He could speak in public as usual, but any physical exertion required an effort quite unusual to him. In walking he felt that he must stop at times although his breathing was not at all affected. The heart sounds were clear, the blood-vessels seemed healthy, and the urine was normal. He continued his work as usual, walking as little as possible. On June 23rd his pulse was 78 per minute, strong, and regular. On July 7th the pulse had again fallen to 40 and was so on the 14th, when he had to leave home to preside over a large religious congress which involved continuous public work from day to day for three weeks. He performed all this without any great fatigue. I saw him again on August 13th when his pulse was 64, strong, and regular and he felt well except that he did not care for walking. For the following three months he was very fully occupied, speaking in public from six to 12 times each week and travelling all over England. I saw him again on Nov. 13th. His pulse-rate was then 38. He looked tired but still persisted in his work which was all planned beforehand.

From this time until Dec. 15th I saw him each week on his return home; he appeared to be gradually failing, his pulse falling to 32 per minute, but still strong and regular. On this date he had a sharp attack of diarrhœa during which the pulse became intermittent and varied in rate from 32 to 40. From Dec. 19th he stayed in bed, and after a few days' rest his condition was as follows. The radial pulse was regular with a rate of 28 per minute, while the jugular pulsation was 56. At the apex the heart could be heard beating in exact unison with the pulse at the wrist. About one inch nearer the middle line a faint sound could be heard exactly half way in time between each sound at the apex, as if the right ventricle contracted twice as frequently as the left. No intermediate pulmonary second sound could be heard. The breathing was quite normal and there was no cyanosis. The tongue was clean and the bowels were regular. The abdomen was rather tense, giving a tympanitic note as high as the fourth rib on the left side. This flatulent condition disappeared in a fortnight when treated with sulphocarbolate of soda and carminatives.

For the next four weeks he was kept in bed and fed on light nutritious diet. His radial pulse-rate varied from 27 to 32, but was always strong and regular, while the intermediate sounds heard internal to the apex gradually became more perceptible, and the jugular pulsations were, always just twice the radial pulse-rate. On Jan. 25th, 1906, the urine was loaded with urates and gave a slight haze on boiling. On Feb. 1st the radial pule-rate was 32, and the pulmonary second sound could now be heard 64 times a minute, the intermediate sound being weaker than the sound which was synchronous with the apex beat. The left ventricle was beating 32 times a minute. On the 4th the intermediate sounds were more pronounced. On the 5th the radial pulse was 63 per minute, strong, and regular. For the next four weeks it varied from 48 to 80, only reverting to the condition of bradycardia on one occasion after a sharp attack of diarrhœa.

During February there were several attacks of diarrhœa which were accompanied with a suppression of one beat in seven at the wrist. On two occasions there were two beats missed at the wrist in succession and the patient's head gave a momentary nod each time it did so. A few days after the pulse rate was restored he complained of a continuous pain on the left side of his head; this eased off when the pulse-rate *fell* below 65 but was very bad when the pulse-rate was over 75. When the pain was severe the anterior branch of the left temporal artery felt hard like whipcord, the right side being quite normal. This pain persisted more or less for about a fortnight. The urine was still full of urates and gave a haze on boiling. He was now able to get up each day, his strength returning very slowly. From March 1st the pulse ceased to be intermittent. On March 30th he was sufficiently recovered to leave home for the seaside and resumed his public work on April 23rd. On April 29th his pulse was 72, every beat strong and regular, and he felt fairly well. Sir William Broadbent saw him with me on Dec. 28th, 1905, and March 21st, 1906.

Lavender Hill, S.W.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., *Procemium.*

CLAYTON HOSPITAL, WAKEFIELD.

A CASE OF PUERPERAL FEVER SUCCESSFULLY TREATED WITH ANTISTREPTOCOCCIC SERUM.

(Under the care of Mr. WILLIAM STANGER.)

FOR the notes of this case we are indebted to Dr. C. Dyson Holdsworth, house surgeon to the hospital.

The patient, who was aged 23 years and had already given birth to one child, was delivered of a male child on Oct. 19th, 1905. The midwife in attendance was unable to deliver the placenta. After the lapse of nearly two hours, during which time there had been considerable hæmorrhage, Mr. L. T. Wells was called in. He had to strip off the placenta manually but it came away whole. The first week of the puerperium was normal but on the night of the 26th the patient's temperature ran up to 105°F. and the lochia became foul. Vaginal douches containing perchloride of mercury were given, cold sponging was practised, and quinine was administered in an effervescing mixture. On the next night the patient's temperature again rose to 105°, but after this there was a slight improvement which, however, proved to be only temporary, so she was removed to the Clayton Hospital on Nov. 6th. As her temperature remained irregular and the discharge began to increase the uterus was explored under an anæsthetic on the 8th and some fragments of membrane were removed with a blunt curette. Intra-uterine douches were given daily for the next week, the discharge decreasing rapidly. On the 9th a pyæmic abscess was opened in the left deltoid region and numerous streptococci were found on microscopical examination of the pus. That evening 20 cubic centimetres of antistreptococcic serum were injected into the abdominal muscles. At midnight the temperature had risen to 105° and the pulse-rate to 150, so ten more cubic centimetres of serum were given. On the following morning the temperature had fallen to 100° but about 7 P.M. the patient had a rigor and her temperature ran up to 105·6°, with a pulse-rate of 138; ten cubic centimetres of serum were administered and as her condition was apparently becoming worse 20 more cubic centimetres were injected and liquor strychninæ hydrochloridi was given every four hours in five-minim doses hypodermically. During the next two days 30 cubic centimetres of serum were given per diem but the patient seemed to be sinking. Several pyæmic abscesses were opened—namely, one in the lumbar region posteriorly, another in the right arm, and another in one of the fingers of the left hand. She then rallied slightly and on the 15th her temperature was down to 99°, so the serum, which had been used in 20 cubic centimetre doses for the last three days, was discontinued. The improvement lasted until the night of the 20th, when the temperature rose to 103° and the serum treatment was accordingly resumed, 20 cubic centimetres being given per diem. On the 23rd the temperature rose to 104·4° and the pulse-rate to 144, so the serum was increased to 30 cubic centimetres per 24 hours for the next three days.

On the 25th a large amount of pus was evacuated from the back. The patient seemed to be becoming feebler and her pulse weaker, so digitalis was administered instead of strychnine for a few days with apparent benefit. On the 26th, as the temperature was lower and the patient seemed a little better, the serum was discontinued; on Dec. 3rd, however, the temperature rose to 103°, so ten cubic centimetres of serum were given on this and the succeeding day, after which no more serum was used. For the next three weeks the patient's temperature remained irregular and several new abscesses had to be opened. The temperature then became steadier, the abscesses gradually dried up, and with the help of tonics the patient made a very good recovery. For a time there was some stiffness of the joints but this was gradually overcome by massage and the patient was able to leave hospital on March 31st. Owing to the difficulty in obtaining supplies three brands of serum were used, the respective makers being Parke, Davis and Co., Burroughs, Wellcome and Co., and the Lister Institute. The temperature and general condition always seemed to respond to the serum and no unpleasant effects were manifested at the sites of injection. During the greater part of the febrile portion of the illness small doses of quinine were given in an effervescing mixture.

BUDLEIGH-SALTERTON COTTAGE HOSPITAL.

A CASE OF RUPTURED PYOSALPINX COMPLICATED BY A LARGE OVARIAN CYST.

(Under the care of Mr. THOMAS G. C. EVANS and Mr. RUSSELL COOMBE.)

THE patient was 39 years of age and had been married for ten years but had never been pregnant. Eight weeks after marriage she had an attack of pelvic pain which kept her in bed for six weeks. During the last few years she had had frequent attacks of abdominal pain which had kept her in bed for a few days at a time. One of these lasted from Feb. 13th to 16th, 1905, and about midnight between Feb. 16th and 17th she had an attack of very acute pelvic pain with vomiting and repeated shivering fits. She was seen by Mr. Evans on the morning of the 17th. Her pulse-rate was then from 150 to 160 and her temperature was 105° F. Her abdomen was distended and very tender just above the pubes. She was removed to the hospital.

Mr. Russell Coombe saw her with Mr. Evans at 3 P.M. Her abdomen was distended and moving fairly freely; both flanks were resonant; the central part of the abdomen from the pubes to above the umbilicus was dull; there was exquisite tenderness on the left side above the middle of Poupart's ligament; the pulse-rate was 160 and the temperature was 103°. Chloroform having been administered by Dr. A. Walker, and Mr. Evans assisting, Mr. Coombe made an incision through the left rectus when a large ovarian cyst, not congested, presented. The excision was extended and this was delivered. It was found to be incorporated with the right side of the womb and the right tube, splitting the broad ligament and lifting the peritoneum up to the pubes anteriorly and up to the cæcum on the right side, so that the bladder showed in a groove on its left side below and the appendix in a groove on its right side above. All attempts to clear it from its connexion with the peritoneum and broad ligament failed and it was therefore drawn over against the right side of the abdominal wound. The pelvis was then explored and the left tube was found to be much enlarged and surrounded by pus which was escaping from a hole in the tube; the pus was sponged up, the tube was emptied, and the tear was clamped. The tube was then dissected off three or four inches of bowel to which it was adherent, the raw surface was covered, and the tube was ligatured off close to the uterus and removed. The remainder of the ovarian cyst was narrowed by a purse-string suture and cut off flush with the abdominal wound, its cavity was packed with gauze, and it was fastened in the lower end of the wound. A large drainage-tube with a gauze wick was then passed down to the stump of the left tube and the abdominal wound was closed with silkworm-gut sutures. The patient made an uninterrupted recovery and is now (August, 1906) in excellent health.

THE WINSLEY SANATORIUM.—The trustees of the Winsley Sanatorium have convened a meeting to consider the financial position of the institution and a proposition which has been made to enable them to raise £7500 on mortgage.

INTERNATIONAL CONFERENCE ON TUBERCULOSIS.—The International Central Bureau for the Prevention of Consumption is meeting at the Hague this week, the deliberations commencing on Sept. 5th. The National Association of England is represented by Dr. C. Theodore Williams and Dr. Nathan Raw.

Reviews and Notices of Books.

Arbeiten aus dem königlichen Institut für Experimentelle Therapie zu Frankfurt-a-M. Herausgegeben von Geheim Medecin Rath Professor Dr. P. EHRLICH. Heft I., mit 6 Tafeln. Jena: Gustav Fischer. 1906. Pp. 102. Price 9*s.*

Professor Ehrlich has reprinted and expanded several papers on cancer in mice which have been published by himself and Dr. H. Apolant since July of last year. To these papers he has contributed a preface in which he summarises the general scope of his investigations. Sticker's observations in dogs on what Ehrlich maintains is a lympho-sarcoma are referred to, as are also those of Sticker and Marx on *molluscum contagiosum*, both having been made in Ehrlich's Institute. The inclusions in cancer cells, such as those so carefully investigated by Plimmer and bearing his name, have been carefully studied and they are stated to be non-parasitic in nature. Ehrlich asserts that no success has yet attended the attempts to solve the problem of cancer by purely histological or purely experimental methods, nor has the study of the processes of division in cancer cells had any useful result. All practical medical men will be in agreement with Ehrlich if his view is that until cancer can be *produced de novo* experimentally we are reduced to studying the behaviour (growth) of fully developed cancer. He lays weight on the fact that he has been able to study 250 tumours in mice and believes that this large number enables him to draw conclusions more certainly than Bashford could do "from a much smaller number of cases."

So much for the preface, the volume itself consists of three parts. In the first part Dr. Apolant discusses the histological features of the mammary tumours of the mouse and the general results of attempting to transplant them; in the second, Ehrlich describes a transplantable chondroma; and in the third he summarises his experimental studies and puts forward some suggestive speculations. Dr. Apolant examined 221 mouse tumours, which he correctly regards as epithelial tumours of the mamma; metastases were present in only six. The tumours he classifies in sub-groups according to their histological characters, represented at one end of the scale by simple adenoma and at the other end by alveolar carcinoma. The histology of the different groups is illustrated on three plates. According to the author, the adenomata are frequently transformed into carcinomata and the process of transformation can be distinctly followed, proceeding either diffusely or in circumscribed areas. An increased energy of growth on the part of the mammary tissue itself may result in the direct development of carcinoma without an intermediate adenomatous stage.

The transplantation of the tumours has been attempted in the following manner, and it is characteristic of the advantageous conditions under which medical research is pursued in Germany that Ehrlich was able to delegate the routine work of many thousand inoculations to skilful laboratory servants. The tumour has been broken down in a mortar to the consistence of an emulsion and a small quantity of this injected subcutaneously. Two days after, the mass is for the most part necrotic and inclosed within a thin zone of proliferating cells. The author gives scant notice to the respective parts played by parenchyma and stroma, possibly because of the difficulty of doing so in broken-down tumour tissue. He contents himself with stating that the tumours develop from isolated groups of cancer cells. It is unfortunate that the part of the stroma is not alluded to, for the author describes the development of growths with the histology of a spindle celled sarcoma in the course of the continued propagation of two of the carcinomata. Apolant found macroscopic metastases in the lungs in the course of the propagation of only one sporadic tumour, and this is explained by Ehrlich as due to the rate and amount of the growth at the site of inoculation starving, as it were, any cells which might have given rise to metastases. Apolant emphasises the absence of infiltrative growth both in the primary and in the transplanted tumours, and in doing so seems to us rather to ignore the demonstration given last year in the reports of the Cancer Research Fund that "expansive" and "infiltrative" growths are dependent on the varying resistance of the tissues to the growth of experimental tumours.

In the third paper Ehrlich reviews the results of his experiments from the standpoint of the "side-chain" theory of immunity, or more concretely from the standpoint of the mechanism of assimilation which the theory postulates as an explanation of the taking up of foodstuffs by cells. The difficulty attending the primary inoculation of spontaneous tumours of the mouse is referred to (Ehrlich only succeeded in transplanting 14 tumours out of 94) and is compared to the varying suitability of animals for grafting of normal tissues, especially embryonic. He concludes that normal animals must possess powers which prevent the continued growth of the tumour cells. In consequence the spontaneous development of cancer is supposed to depend on *two factors*: (1) the primary cancerous cell transformation and (2) the growth of this small cancerous area into a tumour. As is now generally recognised, the two factors are quite independent, and Ehrlich contrasts them as presenting an analogy with (1) the introduction of the tubercle bacillus and (2) the development of progressive tuberculous lesions. The possibility of varying virulence of the cancer cells playing an important rôle, just as in the case of tubercle, is treated as of subsidiary importance, and all carcinomata are apparently regarded as potentially equally virulent, although the divergent results of the primary transplantations recorded in the papers seem directly to negative such a conclusion. Ehrlich strongly holds that it is possible to increase artificially the power of growth of the cells by selective transplantation and in this way to overcome the individual resistance. The frequency of spontaneous cancer is believed to be determined by the absence of this natural power of resistance.

The results of transplanting mouse tumours, especially the sarcomata already referred to, in rats are described in this section at some length. A temporary proliferation is obtained in the rat; after a week the tumour ceases growing and is ultimately absorbed. This result is made the basis of a fundamental speculation on the bio-chemical conditions under which the growth of tumour cells proceeds. In addition to the ordinary foodstuffs necessary for growth, and which are supplied equally by the rat and by the mouse, Ehrlich postulates a special substance "x" necessary for continued growth and found only in the mouse. The amount of this substance "x" transplanted along with the tumour cells suffices to enable the cells to grow for a time in the rat, and when this amount is exhausted growth ceases. The immunity of the rat to a mouse tumour is hence not due to inimical substances in the rat's body but to the absence of the substance "x" necessary for growth; the immunity is due to "atrepsie" (from τρέφω—nourish). In a similar manner Ehrlich accounts for the small size of the lung metastases he has observed in mice with transplanted cancer, and ignores, or is unaware of, the large size of the metastases which other investigators have observed. The primary tumour requires so much of the special foodstuffs ("x," &c.), according to Ehrlich, that the metastasis is starved. Pursuing this line of reasoning, the conclusion is arrived at that the absence or the small size of metastases is evidence of a special kind of malignancy, characterised by an abnormally high power of proliferation. The relative energy with which nourishment is taken up by the tumour cells and the body cells respectively is made the subject of an interesting speculation. Briefly, Ehrlich, it seems to us, assumes that a tumour which does not grow on transplantation fails so to do because the avidity of the cells of normal animals for nourishment is greater than that of the tumour cells in question. *A fortiori* the tissue cells of the animal spontaneously suffering from such a tumour must have had an avidity much below normal and this constitutional dyscrasia determined the growth of the tumour in that animal; in other words, was the cause of cancer. It is suggested that such a diminishing power of absorbing nourishment on the part of the tissues generally as age advances may account for the age-incidence of cancer.

The papers are a valuable contribution to the experimental study of cancer. Many of the facts are identical with those on the growth of cancer under experimental conditions with which the work of the Cancer Research Fund has made us familiar in this country during the past three years. The results of the German and English investigations, where they cover the same ground, are for the most part confirmatory of one another, and where they do not overlap they are complementary of one another. The speculations in which the distinguished German investigator indulges are characteristic examples of Ehrlich's scientific use of the imagination. Speculation on the nature of cancer knows no limits, and in this connexion we may add that Professor Ehrlich is not always urbane in his allusions to the work, some of which is necessarily speculative, of other observers.

Gynæcological Diagnosis. By ARTHUR E. GILES, M.D., B.Sc. Lond., F.R.C.S. Edin., M.R.C.P. Lond. With 35 original illustrations. London: Baillière, Tindall, and Cox. 1906. Pp. 212. Price 7*s.* 6*d.* net.

Dr. Giles truly points out in his introductory chapter that there are many difficulties in the way of the student who is anxious to obtain some practical knowledge of gynæcological diagnosis. Only too often his opportunities of making pelvic examinations during his student career are of the scantiest, and unless he holds some resident post he may well commence practice without being able to say with certainty what the exact condition of the pelvic organs in any given case may be. A book such as this will prove of considerable assistance to the student in helping him to make the most of his scanty opportunities, and will also be of assistance to those who are engaged in teaching students this branch of medicine. It is written purely from the clinical point of view and on the plan of arriving at a diagnosis from the presence of certain symptoms or physical signs. The various symptoms are discussed in turn and the different conditions which may be associated with them are pointed out. At the end of most of the chapters synoptical tables are given, showing in a clear form what pathological states are met with in association with certain groups of symptoms and physical signs. In this way practically the whole field of gynæcological diagnosis is covered.

Dr. Giles has carried out his purpose fairly well. We are surprised, however, to find no mention of what may be termed ordinary ovarian pain either in the text or in the index. Apparently the author holds that all cases of such pain are due to a condition of so-called oöphoritis. This we cannot agree with and we are not aware of any proof of such a view. Cervix-adenoma is a term which we think might well be given up. An erosion is in no sense of the word a true adenoma, and the use of this term only leads the student to imagine that it is some form of new growth resembling the common adenoma of the breast with which he is probably best acquainted. To call an erosion of the cervix uteri an adenoma seems to us a misuse of a term which has always had a well-recognised meaning. On p. 126 we are told in the diagnosis of the causes of hæmorrhage from the body of the uterus that we may feel a mass with the consistency of adenomata. We do not quite know what the author means, but are sure that statements of the kind are out of place in a book for students. Indeed, throughout a book which displays much industry and knowledge the author is not sufficiently careful to weigh his words exactly. One of the most difficult abdominal tumours to diagnose correctly is an encysted collection of fluid due to tuberculous disease of the peritoneum. We are afraid that but little assistance would be obtained by anyone referring to Dr. Giles's book for help in the recognition of the condition. Again, it is not very accurate to say that the hymen is deficient in pregnancy, when what is meant is that the hymen is torn or stretched. It would be difficult for anyone to make a correct diagnosis of hydramnios on the very insufficient data which are given. A large abdomen occupied by a smooth tense tumour in which fœtal parts can be made out appearing to correspond to one fœtus only, and in which only one fœtal heart can be heard, does not seem to us either a correct or an adequate description of a condition which is not uncommon and which often leads to difficulties in diagnosis.

One of the chief difficulties in writing a book purporting to supply a synoptical scheme of diagnosis is to insure that all the symptoms of any given disease shall receive a place. Thus in the present instance there is no mention of the abdominal pain so constantly present; nothing is said of chills or fever, or of the pain on micturition commonly met with in these cases. Dr. Giles may have been afraid of seeming to repeat himself, but in a book for students such repetition is often a virtue.

We have frankly pointed out what we consider the defects and omissions in a book with many good qualities, but no doubt in a future edition the author will amplify and improve his work, when it should be found a very useful one. The illustrations are clear and useful.

Acute Contagious Diseases. By WILLIAM M. WELCH, M.D., and JAY F. SCHAMBERG, A.B., M.D. Illustrated with 109 engravings and 61 full-page plates. London: Henry Kimpton. 1905. Pp. 781. Price 25*s.*

THE authors in their preface explain that the diseases dealt with are those of which they have had special experience in the municipal hospital at Philadelphia and that they have dealt with those especially characterised by transmissibility and by contagion rather than the group of "infectious diseases" as a whole which would have necessitated the inclusion of maladies upon which they do not feel specially qualified to write. The text is based upon, among other things, a personal study of over 9000 cases of small-pox, 9000 cases of scarlet fever, and 10,000 cases of diphtheria, which no doubt accounts for the fact that the authors are eminently practical in their descriptions of the diseases of which they write. One of the most noteworthy features of the book is the excellence of the illustrations which are almost without exception good reproductions of photographs of actual cases. The various rashes are represented by typical examples and in some cases serial photographs of the course of the rash are given. Specially worthy of mention is the series of eight full-page plates showing the course of the rash in small-pox in an unvaccinated man, from the appearance of the papules to the stage of scarring. Many of the other rashes are also shown as well as possible without coloured plates.

The book begins with an exhaustive study of vaccinia, which though not strictly a contagious disease within the definition of the authors, is included because of its relation to variola. The history of vaccination is given in considerable detail; the technique of the process, the course of the disease, its complications and sequelæ are carefully described, and a section is devoted to statistical evidence of the value of vaccination which is well worth study. An interesting chapter deals with the variolous diseases of lower animals and contains a good deal of information with reference to the literature of this comparatively neglected study. Chapters IV. and V., comprising together 172 pages, are devoted to variola and constitute a thoroughly comprehensive study of that disease copiously illustrated from the authors' own extensive experience. The account of the diagnosis and treatment is thoroughly practical and useful. The Cytorextes variolæ is carefully described and references are given to the literature of the subject. Chicken-pox is next dealt with and the symptoms, diagnosis, and complications are carefully given. The account as a whole is perhaps a little less exhaustive than that given of variola. Scarlet fever is next discussed and the account given is of equal merit with those preceding it. The illustrations of the process of desquamation are particularly good and should be useful to the student or practitioner using the book as a a work of reference. The account given of scarlatinal rheumatism is shorter and less complete than we should have looked for in a work of this magnitude. In the section devoted to measles some coloured figures are given, reproduced from Koplik, of the spots which are usually referred to by his name. This chapter is nearly as lavishly illustrated by reproductions from photographs as that on variola. Rubella is next considered and its various forms are described and illustrated.

Typhus fever and diphtheria complete the list of diseases comprised in the contents of the volume. The article on typhus fever contains far fewer references and is shorter than most of the others, but the general features of the disease and its complications are adequately described. The diagnosis of this disease, now fortunately so comparatively uncommon in most parts of this country, is carefully considered. The account given of diphtheria includes the bacteriology of the disease, its various forms, and their recognition and prognosis. The serum treatment is dealt with in a chapter to itself where statistics of its effects are given. The authors give as their experience that cases treated by medium-sized doses recover as well as those receiving very large doses, after the manner recommended by McCollom of the Boston City Hospital. The various antitoxin rashes are described and figured. The book concludes with a short chapter on disinfection, which might with advantage have been extended so as to include some general remarks on quarantine, for quarantine is only referred to in the chapters on scarlet fever and variola.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K.C.B., F.R.S., and J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXIV., Nos. 4 and 5. Cambridge University Press: C. F. Clay. August 10th, 1906. Price 8*s.*—The articles contained in this number of the journal are: 1. The Regeneration of Post ganglionic Vaso-constrictor Nerves, Part I., by Basil Kilvington and W. A. Osborne, with nine figures in the text. Starting from the observation of Langley and Anderson that when the central end of a divided limb nerve has an opportunity of joining with two peripheral nerves stimulation of one peripheral nerve, after complete severance of the conjoined nerves from the central nervous system, may cause contraction of the muscles innervated by the other, the author draw the conclusion from their experiments that when the central end of any nerve distributed to a limb is sutured to the ends of two peripheral nerves, vaso-constrictor fibres can be detected after a time in both peripheral nerves, but no axon bifurcation of vaso-constrictor fibres takes place. 2. The Post-mortem Flow of Lymph, by F. A. Bainbridge. The experiments were made on dogs and the flow of lymph from the thoracic duct was usually observed to continue for about an hour after death and was most abundant during the first 20 minutes. It is chiefly derived from the liver capillaries, from whence it is squeezed into the thoracic duct by intestinal movements taking place after death. 3. The Influence of Organ Extracts of Cold-blooded Animals on the Blood Pressure of Dogs, by Orville Harry Brown, M.D., and Don R. Joseph, M.S., with eight figures in the text. The animals experimented on were dogs and the extracts used were those of the liver, kidney, and sex glands of sharks, squeteague, and dog-fish. These contain both pressor and depressor substances, the effects being due to vaso-motor changes. 4. Further Observations upon the Functions of the Thyroid and Parathyroid Glands, by Swale Vincent, Professor of Physiology in the University of Manitoba, Winnipeg, and W. A. Jolly, assistant to the professor of physiology in the University of Edinburgh. In these further observations the authors state that their experiments show that neither thyroids nor parathyroids can be considered organs absolutely essential to life. Many animals suffer but little from their removal. They think that the pathology of myxœdema must be more complex than simple thyroid insufficiency. 5. The Estimation of the Oxygen Dissolved in Salt Solutions, by Joseph Barcroft and Philip Hamill, with three figures in the text. The figures represent the apparatus employed. 6. Experiments in Examination of the "Locked Jaw" Induced by Tetanus Toxin, by Herbert E. Roaf, M.D. Toronto, and C. S. Sherrington, with four figures in the text. Three of the higher types of apes were the subjects of experiment—Cercopithecus, Cynocephalus, and Simia. The changes in the reactions observed seemed to the authors explicable by changes in the condition of lower centres upon which the "motor" cortex acts. 7. Cortex and Medulla in the Suprarenal Glands, by T. R. Elliott (G. H. Lewes student), and Ivor Tuckett. The relative masses of these parts were compared and the effects of the removal of the glands observed. In the guinea-pig removal of both glands causes death in a few hours and the removal of one gland, notwithstanding the exercise of great care, proved fatal within 24 hours. A description is given of the histology of the glands not only in the guinea-pig but in the Monotremata. The effects of suprarenal grafts in the guinea-pig are discussed. 8. Further Observations on the Time Relations in the Action of Trypsin, by S. G. Hedin. 9. On the Optimal Electric Stimuli of Normal and Curarised Muscle, by Keith Lucas, Fellow of Trinity College, Cambridge, with six figures in the text. The Proceedings of the Physiological Society on June 2nd, 1906, are also given.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., ADAM SEDGWICK, F.R.S., and SYDNEY HICKSON, F.R.S. With lithographic plates and text figures. London: J. & A. Churchill. August, 1906. New Series, No. 199 (Vol. L., Part 3). Price 10*s.*—The contents of this number are: 1. On the Development of Nebalia, by Margaret Robinson, Zoological Research Laboratory, University College, London. The Nebalidæ form one of the lower subclasses of the crustacea, the body presenting 21 segments, of which the foremost are inclosed in a bivalve shell. Miss Robinson obtained her specimens from Naples, Jersey, and Roscoff. The nearest allies amongst the Entomostraca are, she thinks, the Phyllopoda and she regards it as probable that Nebalia is the most ancient crustacean at present known. Miss Robinson gives the earlier stages of the development and illustrates her description with six plates. 2. On the Early Stages in the Development of Flustrella Hispida (Fabricius) and on the Existence of a Yolk Nucleus in the Egg of this Form, by R. M. Pace (*née* Clark), late scholar of Girton College, with four plates.

The material on which the article is based was obtained from the south coast and Isle of Wight where it is found growing abundantly between tide marks on fucus and other algæ, the colonies forming dark, mossy-looking patches incrusting the algal fronds. The *Flustrella* is a Bryozoan and the reproductive process can be followed from February to August. A yelk nucleus of the type seen in Pholcus is present in the developing egg. Segmentation and cell lineage have been followed out in detail and are illustrated in four plates up to the 32-cell stage. The formation of the endoderm has been traced. The oral and aboral ectoderm are shown to be differentiated as early as the 16 cell stage. The ciliated ring of the larva is formed by the coalescence of several distinct rows of cells and the animal is provided with a stomach. 3. Researches on the Origin and Development of the Epiblastic Trabecula and the Pial Sheath of the Optic Nerve of the Frog, with Illustrations of Variations met with in other Vertebrates and some Observations on the Lymphatics of the Optic Nerve, by J. T. Gradon, M.A., St. John's College, Oxford, with two plates. Mr. Gradon finds that the cells of the optic stalk perform the following three functions. They conduct the nerve fibres, which in their turn resolve the constitution of the cells of the stalk so that they, in the second place, provide the nerve fibres with a supporting framework which, thirdly, provides the whole interior of the optic nerve with an elaborate system of minute lymph channels. 4. Piroplasma Muris, Fant., from the Blood of the White Rat, with Remarks on the Genus Piroplasma, by H. B. Fantham, B.Sc. Lond., Derby Research Scholar, University College, London, with a plate. The parasite was found to be widely distributed through the body of the rats examined, it is intra-corpuscular in habit, occurring in the red corpuscles of the host and belongs to the order Hæmosporidia of the class Sporozoa. They resemble a pear in form and are from 0·5 μ to 1·5 μ in diameter and from 2 μ to 3 μ in length, with usually one chromatin body. They multiply by simple fission.

LIBRARY TABLE.

Anæsthesia in Dental Surgery. By THOMAS D. LUKE, M.B. R.U.I., F.R.C.S. Edin. Second edition. With 29 illustrations. London: Rebman, Limited. Pp. 227. Price 6s.—Dr. Luke has much increased the usefulness of his little book by the additional detail into which he has entered with regard to local anæsthesia for dental extractions. Indeed, we regard the chapter upon this subject as the best and most important in the book, for we are not acquainted with any work on general anæsthetics in which the matter of local anæsthesia in dental work is fully dealt with. Dr. Luke has added an appendix dealing largely with chloroform in dental surgery. Here, while we are in entire agreement with the general principles enunciated, we find some statements as to the action of chloroform which we do not confirm and which are not in accordance with generally accepted doctrine. Dr. Luke appears to us to lay too much stress upon the liability to reflex vagus inhibition in light chloroform anæsthesia and too little upon the importance of dosage. Also one of his explanations of chloroform death as due to "direct retardation and arrest of the pulmonary circulation, first in the capillaries and later in the larger vessels, due to direct local action of chloroform," is a statement for proof of which we should be glad to have reference. Dr. Luke enters upon the question of the administration of anæsthetics by those holding a dental but no medical diploma and draws attention to the looseness of all legal statement in the matter. We think that he might have spoken with even more marked emphasis upon the undesirability of the administrations being conducted by any but a properly qualified medical man and upon the advantages of more medical students making themselves really proficient in dental anæsthetics before going into practice. Dr. Luke's book is clearly written and well produced and we congratulate him upon the need for a second edition.

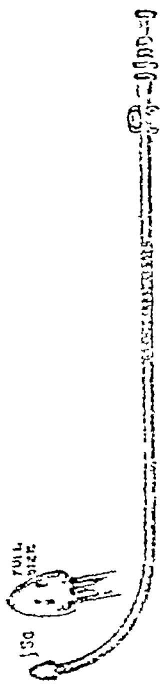
Lehrbuch und Atlas der Zahnärztlichen Technik. Von Dr. Med. und Phil. GUSTAV PREISWERK. With 330 Illustrations. Munich: J. F. Lehmann's Verlag. 1906. Pp. 442. Price 14 marks.—This volume should prove of value to those who are more particularly interested in the mechanical side of dental practice. It is hardly within the scope of this notice to enter into a detailed criticism of the various methods advocated; suffice to say that the different ways of replacing teeth by means of crowns, bridge-work, and ordinary plate-work are fully described and illustrated in a thoroughly up-to-date manner. The final pages of the book are devoted to the methods of making obturators and to regulating appliances. The volume forms one of Messrs. Lehmann's well-known series and should help in sustaining the reputation which that series has already obtained.

Methods of Organic Analysis. By HENRY C. SHERMAN, Ph.D., Adjunct Professor of Analytical Chemistry in Columbia University. New York and London: Macmillan and Co., Limited. 1905. Pp. 245. Price 7s. 6d.—In the words of the preface "no attempt is made to touch upon all important branches of this subject." The principles of organic analysis as applied to food and drink materials are, however, adequately set forth and the particular topics chosen as examples are well calculated to give the careful reader a very good groundwork of organic methods and to put clearly before him the meaning of the results. Apart from this, the author has exercised an excellent discretion in his selection of references to the works on the subject by acknowledged authorities not only in America but in this and other countries. The reader, therefore, who is eager to pursue his studies farther into any given subject or to acquire greater detail is not left without the references to the contributions of special workers which are likely to afford him just the information that he requires. The following are the food products which are analytically discussed in the 14 chapters: alcohols (including glycerine), aldehydes, carbohydrates, acids (including vinegar and fatty acids), oils, fats and waxes, butter, soap and lubricants, proteids and cereals, milk and preservatives. The book sets forth an excellent introductory scheme of training in organic analysis.

THE WANT OF PROPERLY EQUIPPED MORTUARIES.—On Sept. 4th Mr. Troutbeck, coroner for the South-Western District of London, made some observations at Battersea respecting the lack of means for the preservation of bodies. Some of those which his jury had sat upon that day were in an advanced state of decomposition. He remarked that the weather had something to do with this state of affairs but considered none the less that there was pressing need for a better state of things at public mortuaries. The Battersea mortuary was one of the best equipped in London, yet it fell far short in regard to means for preserving the dead. Mr. Troutbeck went on to say that in any similar case where suspicions of poison existed the difficulties of the pathologist and toxicologist would be very great, and he concluded that the existing state of affairs was due to divided authority, one authority appointing the coroner, another providing the court, and another the mortuary. The authorities as at present constituted often did not possess the power to provide that which they ought to provide; there was, for example, no power to provide a toxicological laboratory. It was merely a matter of chance that the authorities were enabled to employ pathologists who had laboratories of their own, otherwise toxicological examination in London would be impossible in connexion with coroners' courts. Having mentioned that in hospitals and in foreign mortuaries corpses were preserved from corruption by proper scientific means Mr. Troutbeck concluded by urging re-arrangement of the law. The jury intimated that they concurred with his views

New Inventions.

A BACK-FLOW CATHETER FOR URETHRAL IRRIGATION.

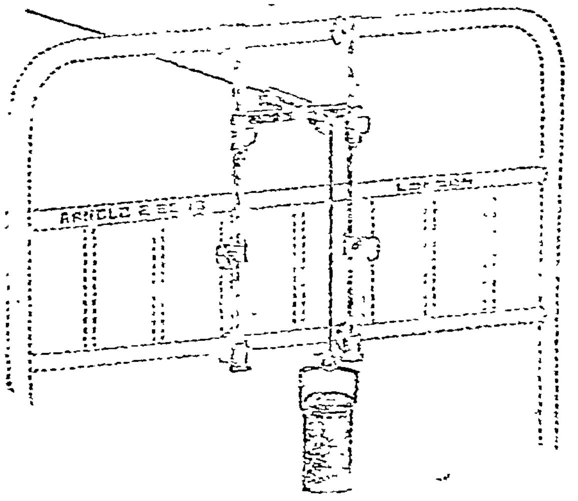


Opinions differ very much concerning the treatment of gonorrhœa by the use of antiseptic and astringent injections, but the majority of those who see much of the disease order injections of some kind to be used during one stage or another. There can be no doubt that if an injection is to do any good at all it must be properly administered, and much of the failure of injections to hasten the cure must be attributed to the inadequate method of use. Messrs. Down Brothers of 21, St. Thomas's-street, London, S.E., have made for me a back-flow catheter through which any quantity of fluid can be made to irrigate the whole urethra without entering the bladder. The instrument is composed of a metal catheter, with a bulbous extremity, curved in the ordinary way. The eyes of the catheter consist of three apertures situated at the junction of the stem and the bulb. The greatest diameter of the bulb is three sizes larger than that of the stem. I have found that No. 4 for the stem and No. 7 for the bulb is the most useful size. The shoulder of the bulb fills up the urethra in front of the eyes and all the lotion escapes in a rapid stream at the side of the stem. The best arrangement is to attach the instrument by means of a rubber tube to a can containing one quart of the lotion. The instrument is passed with the ordinary precautions as far as the compressor urethræ, when it is natually arrested. This is far enough for a case of anterior urethritis, but in posterior urethritis the instrument should be passed into the bladder, and then withdrawn until the bulb is felt to be just grasped by the vesical orifice. The douche can is raised three feet above the patient's bladder and the quart of lotion takes from three to five minutes to run out. An intelligent patient can be taught to do this for himself night and morning, and provided he sterilises the catheter each time there is no more risk of septic infection than when he uses an injection with an ordinary glass syringe. The rapid improvement in cases where it is used will soon convince anyone of the practical utility of the device. An ordinary glass syringe can, of course, be used instead of the douche can.

Ernest W. Hey Groves, M.D. Lond., F.R.C.S. Eng.,
Assistant Surgeon to the Bristol General Hospital.

THE NORLEDGE EXTENSION APPARATUS.

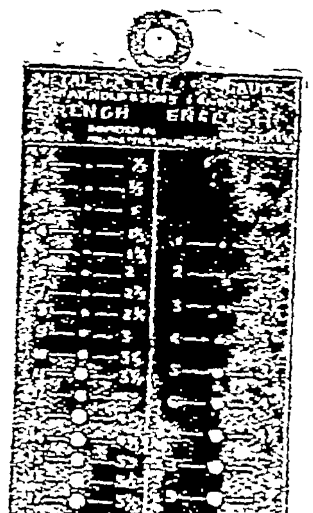
The illustration represents an extension apparatus for surgical purposes which seems to me to possess advantages over those at present in use. Some of its special features are that it is free from vibration, simple in construction, easily fixed, portable, sightly, and can be rendered aseptic. The apparatus consists of a frame having adjustable hooks by which it can be hooked on to the rails at the foot of the bedstead and to the frame is adjustably attached a tube through which runs a cord, having at one end means of attaching it to the leg of the patient and at the other end a weight or shot-can, a pulley being provided for the cord to pass over. A convenient form of the apparatus is two bars, each having a rigid hook at the upper end and an adjustable one at the lower end. On these bars slides a cross bar, detachable in any required position and carrying a tube having a pulley at one end, through which tube passes the cord. The makers are Messrs. Arnold and Sons, West Smithfield, London, E.C.



Charles D. Muspratt, M.D. Lond., F.R.C.S. Eng.,
Surgeon to the Royal Victoria Hospital, Bournemouth.

A NEW METAL CATHETER GAUGE.

I have usually found that a considerable amount of vagueness exists, not only about the numbers and diameters of the French and English catheters respectively, but also on the relation the two scales of measurement bear to each other. To obviate this I have devised the following instrument, of which the accompanying figure is an illustration. By an omission the last three numbers of the diameter in millimetres of the French catheters have been left out in the figure. The gauge is made of German silver (polished) and is 12¼ inches in length and 5 inches wide. On the left-hand side the number and diameter in millimetres of the French catheters are represented, and on the right side the English. By using this gauge not only can the number and diameter in millimetres of any metal catheter be determined at once (and this is a great advantage where the numbers are only placed on the stylets, which are liable to be put back into the wrong catheters) but also the relation the French scale bears to the English can be appreciated at a glance. The gauge can be sterilised by boiling and does not tarnish. It has been made at my suggestion by Messrs. Arnold and Sons, West Smithfield, London, E.C., who after several trials have successfully surmounted all the technical difficulties in connexion with its manufacture.



Cecil H. Leaf, M.B. Cantab., F.R.C.S. Eng.,
Surgeon to the Cancer Hospital and to the Gordon Hospital for Rectal Diseases.

THE LANCET.

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The Meaning of Scientific Method.

IF the average citizen were asked to describe the method pursued in scientific investigation, he would probably answer somewhat to the effect that it consisted in the observation of phenomena and the record of what was observed—that the chemist mixes various substances in his test-tubes or heats them in his crucibles and retorts and observes what takes place; that the biologist collects his plants or animals and arranges them according to their resemblances in groups; that the astronomer studies the movements of the stars and notes their positions and relations on a map. The average citizen might add that the use of instruments of precision is necessary to such observation, but he would still probably regard mere record of particulars as the essence of science. In such an answer there would undoubtedly reside a large portion of truth, since accurate observation is the first requisite of every branch of knowledge and the majority of researchers must be content with such work alone, leaving to a chosen few the processes of inference and generalisation; but it would be a small portion only of the whole truth. Yet it may be doubted whether many among the large army of workers in the field of science would be prepared to supply off-hand an adequate account of the methods pursued in scientific advance. We reason intuitively and leave it to the logicians to analyse the processes of thought. Hence actual advances in knowledge have always preceded the formulation of new methods of scientific investigation. In days long ago the mathematical sciences were carried to a high-pitch of perfection, and with this came ARISTOTLE'S masterly analysis of the deductive method of reasoning, to which little or nothing has been added in more recent times. The revival of the study of nature, which in the sixteenth century followed the overthrow of blind belief in traditional wisdom, was the forerunner of BACON'S "Novum Organum," or new instrument of scientific inquiry as analysed by him. This was the inductive method, which had been known indeed to ARISTOTLE but not invested by him with that importance which it was afterwards to attain. Yet, in truth, neither the inductive method by which we infer universal laws from a series of particular instances, not the deductive method by which we descend from general rules to individual phenomena, is alone sufficient for our purpose when we investigate the secrets of nature. Both intellectual instruments must be used in combination, as was seen by MILL, whose work coincided with the rapid growth of scientific knowledge at the beginning of the nineteenth century, a growth which has continued uninterrupted to the present day. Very interesting examples of the mode in which great scientific discoveries have been made are given in a collection of lectures[1] recently delivered at Oxford, which are now published by the Clarendon Press. One of the most notable instances is that of NEWTON'S discovery of the law of gravitation as set forth in his "Principia." The laws of motion as we know them were first discovered by inductive reasoning, and from them NEWTON deduced mathematically—that is to say, deductively—the truth that every body which moves in an elliptical orbit around another body lying in one of the foci of that ellipse is drawn towards the latter by a constant force. The planets are therefore drawn towards the sun by such a force. Starting from this result of deductive reasoning NEWTON advanced by a further induction to the universal law that all bodies are mutually attracted, in other words to the general law of gravitation. Both methods of logic were therefore necessary for this grand scientific generalisation.

The methods of reasoning adopted in the field of science do not differ in essence from those employed in forming judgments in the affairs of ordinary life; but the degree of accuracy demanded is higher, and for the purpose of attaining thereto constant verification of the conclusions arrived at is practised. The attitude of the scientific observer is one of scepticism on all points which seem to depend merely upon the dicta of authority. Accepted conclusions are constantly being discarded in the light of further knowledge, and closer and closer approximation to the truth thus constantly obtained. Only a short time ago nothing seemed more certainly established than the immutability of the chemical elements; now the old Heraclitean doctrine of continual change seems to be in process of revival and the mutability of the elements themselves is freely canvassed, if not yet generally accepted. If this constant change of doctrine is true of the physical sciences such as chemistry and astronomy, how much more may we expect to find it in the more complicated and therefore backward branches of knowledge dealing with life and with mankind? Here opinions must undergo a ceaseless, if often imperceptible, evolution. The once firmly established doctrines of Individualism and of Free Trade are now being subjected to a scrutiny as to their claims to constitute true generalisations, and the result of the examination is as yet obscure. Unfortunately, in the sphere of politics scientific methods are discarded; a system in which conclusions are reached by counting heads of partisans on either side is not conducive to a rapid process of ascertainment of truth. Yet even to political questions the logical methods to which we have previously alluded are ultimately applied, and the advance of knowledge is only checked, not arrested, by the idols of the market-place to which any particular generation bows the knee. That even temporary obscuration of truth is possible in these matters is due to the complexity of the problems presented by social inquiries, from which it results that accuracy such as is attainable in the more abstract sciences is here impossible.

But this complexity is not confined to social questions, it is present to an almost overwhelming degree even in the comparatively simple problems of physiology; it is still more perplexing in connexion with the realm of nervous and mental activity. In the science of pathology, and consequently in the associated art of medicine, the difficulties of research are manifest. Experiment is practically impossible on the human subject and verification of theories is thus as a rule prevented. Nor are extraneous obstacles arising from accepted doctrines and popular prejudices by any means absent. But the physician must endeavour rigorously to apply the methods of scientific research in these as in other fields. He must resolutely decline to submit his judgment to the fetters of ancient authority, however firmly they may seem to be riveted. He must submit his conclusions constantly to the touchstone of facts. He must realise that reason will be the guide to his steps, and that the passions of controversy and the prejudices of popular ignorance are alike hostile to true progress. Innovators are usually disliked and run the risk of being regarded as heretics and socially, if not ecclesiastically, excommunicated. Some of these independent spirits, however, in the end win niches in the Temple of Fame, when the discredit of having placed obstacles in their path becomes very terrible. Formerly it was expected that the public would be ready to view all new medical discovery with suspicion, but the present condition in the world of medical science does not quite agree with this picture. The public seems to us to be almost gullibly anxious for new theories in diagnosis and new processes in therapeutics, and a grave responsibility is thereby put upon the medical man. He has to make up his mind, often upon insufficient data, whether certain developments are proceeding along the line of proven knowledge and constitute progress, or whether they are vagaries to be disregarded and condemned. If he acquiesces in the new suggestions he knows that the public will readily follow his suit, if he puts his veto upon a trial of them he, the man of science, may be a stumbling-block in the path of science. How true is the saying, Once a student of medicine always a student. Only the resolute intent to keep abreast with developments in our knowledge can assist the practitioner in such difficulties.

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[1] Lectures on the Method of Science. Edited by T. B. Strong, Dean of Christ Church. Oxford, at the Clarendon Press. 1906. Pp. 249. Price 7*s.* 6*d.* net.

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The Feeding of School Children.[1]

WE have already had opportunity of commenting on the proposed measure for enabling local authorities to provide meals for those children in public elementary schools who are in need of such assistance, and have pointed out the difficulties which the problem presents when practical means have to be devised for carrying out this necessary duty. On the one hand, it is clearly indefensible to insist upon any child undergoing school discipline when owing to insufficient food it is not in a fit state to benefit by the instruction given. On the other hand, any attempt to institute a system of free meals for indigent children brings us face to face with the problem of selecting those who are proper recipients of such charity, for we must prevent any possibility that merely lazy or careless parents should take advantage of the provision to enable themselves to shirk a still further portion of their duties towards their children. The report of the Select Committee to whom the Bill introduced into the House of Commons was referred is now issued, and we have further means of judging of the form the measure is likely to take. The report shows clearly that the committee was deeply impressed with the difficulties to which we have alluded and is anxious to find means of steering safely between Scylla and Charybdis. It points out in its preliminary remarks that evidence goes to show that the number of children who are in actual need of food is relatively very small, one witness stating that in West Ham, a very poor district, the number of children fed at present by a charitable agency was only about 1000 out of a total of over 53,000 attending the schools. Nor is the need a constant factor, being much less urgent in the summer than in the winter months. At present there do not exist any satisfactory means of ascertaining the real number of children who are in need of sustenance, since the teachers are not trained so as to be able to distinguish starvation from other causes of wasting—and indeed it is not by any means a simple problem even for a medical man in all cases. We are glad to see that the committee realises the importance of that medical inspection of children at our elementary schools upon which we have always insisted. Thus it reports: "The committee attach importance to the power proposed to be given in Clause 35 of the Education Bill now before Parliament to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children." Whatever view medical men as citizens may take as to many of the provisions of this last-mentioned Bill, there can be no hesitation among them, as members of the medical profession, in endorsing this proposal as useful and indeed indispensable.

Turning to the economical recommendations of the committee, we find that it holds that the educational authority and not the boards of guardians should have the responsibility of administering the measure. The cost of the meals should be recovered from the parents of the children, but if they are unable or unwilling to defray it the guardians are to be called upon by the school authority to find the money and are to undertake the recovery of it from the parents. All inquiries into the condition of the children are to be made by the educational authority, the Poor-law officers affording them any aid required, but precautions are to be taken to avoid any stigma of pauperism attaching to particular children. It is not, however, contemplated that in the majority of instances the money for the actual provision of food should be supplied by public funds; it is hoped that it would generally be forthcoming from charitable sources. The school authorities are merely to furnish the necessary buildings and to supervise the distribution of the meals. In the case of any very poor districts, in which voluntary agencies may fail to supply the food, public money may be made available, but not to an amount exceeding that produced by a ½*d.* rate throughout the district. As we have previously pointed out, we have little confidence in this limitation; should the amount thus provided be insufficient the outcry for more will be irresistible when the principle of providing meals has once been adopted. There is also a real danger that charitable contributions will dry up when it is realised that the subscribing donors are merely saving the rates and taking upon themselves what they may well regard as a duty to be shared by all alike. In the case of parents wilfully refusing to feed their children or to pay for the meals provided it is clear that legal compulsion must be employed, and the question arises as to the authority which is to undertake the task of prosecution. The committee recommends that this duty should be discharged either by the guardians or by the Society for the Prevention of Cruelty to Children. With regard to the latter, we cannot refrain from questioning the advisability of intrusting public work to a private body enjoying no recognised State sanction. The society does much admirable work, but it should not be called upon to undertake duties which the State by legislation has laid upon itself.

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[1] Special Report and Report from the Select Committee on the Education (Provision of Meals) Bill, 1906, and the Education (Provision of Meals) (Scotland) Bill, 1906, with the Proceedings of the Committee. (Wyman and Sons, Ltd., Fetter Lane, E.C.)

Apart from this feature we have little criticism to offer upon the suggestions of the committee. In breaking such new ground as is here done, first steps must be hesitating and tentative. The local educational authority is to delegate its powers to a committee comprising representatives of the voluntary subscribers as well as of itself, along with delegates from the board of guardians and from the local branch of the Society for the Prevention of Cruelty to Children, if the two last elements seem desirable. Stress is laid upon the importance of encouraging the association of voluntary helpers with the school authorities. The meals are not to be given in the actual schoolrooms if this can be avoided, owing to the difficulty which would thus be created of properly cleansing and ventilating the rooms. This is certainly a wise provision. So, too, is the stipulation that it should not be made a condition of appointment for any teacher that he or she shall, or shall not, take part in dispensing the meals provided for the children. We cannot but think that the action of the London Education Committee in exacting this service from their teachers is indefensible. The health of the teacher should be no less an object of consideration than that of the children, and such additional work as is implied in supervising the distribution of meals tends to curtail unduly the midday period of rest which forms a necessary prelude to the afternoon labours. Teaching a large class is in itself an exacting duty, quite sufficient for the strength of most of those who are engaged in this occupation. It is unjustifiable to add to the stress by a demand that the teachers shall "serve tables." Precedent suggests that special helpers should be provided for this duty, or the more technical work for which the teachers are appointed will inevitably suffer.

Death Certification at Bootle and Elsewhere.

THE infantile and uncertified mortality in the borough of Bootle, which was formed in 1868 out of a northern suburb of Liverpool, and includes a large portion of the Liverpool docks, has lately been made the subject of a controversy between the medical officer of health, Mr. T. W. NAYLOR BARLOW, and the county coroner, Mr. SAMUEL BRIGHOUSE. The latter gentleman, a layman, has defended himself with somewhat unnecessary energy against what he conceived to be imputations cast upon him by the former, but which were, in reality, no more than suggestions for the better protection of the public by a modification of the procedure now adopted for inquiring into the probable causes of uncertified deaths. Mr. BARLOW will, we think, be fully sustained by public and professional opinion in the position which he has assumed, and it may be hoped that Mr. BRIGHOUSE, on farther reflection, will realise that he has stood upon the defensive somewhat prematurely, and before he had been made the subject of attack. In Mr. BARLOW's annual report for 1905, which was issued in June last, he called attention to the contrast between the steadily improving and very satisfactory general death-rate of the borough and the high infantile death-rate, the former having been 17·3 per 1000 and the latter 153, including 83 deaths from diarrhœa. He expressed his conviction that the period of 42 days, which may now elapse between the birth and the registration of an infant, is far too long, as it permits many children to escape registration altogether. The parents leave the district before the six weeks have expired and migrate to another in which no inquiry is made about them. The interval also gives ample time for the death of an infant from neglect or improper feeding before any intimation of its having been born has reached the lady sanitary inspector of the district, whose first visit of inquiry may be met by the reply that the child is dead and buried, and often by abundant evidence that it has died from some cause which her advice and instruction might have obviated. Mr. BARLOW's mortality tables show that in Bootle about 30 per cent. of all deaths of children under one year occur during the first six weeks, and he thinks it probable that many of these lives would be saved to the State if births were registered immediately.

So far, of course, there is nothing which could afford the coroner any reasonable ground of complaint, but a subsequent passage of the report sets forth that in 38 cases within the borough the cause of death had not been certified by a medical man and that no inquest was held upon any one of them. Mr. BARLOW goes on to say that it is within the discretion of the coroner to hold an inquest in any case of uncertified death, and states his belief that that official decides the question on information forwarded to him by the police. He then points out that the ordinary policeman is quite unsuited to make inquiries for the information of the coroner, and that the existing practice really leaves the cause of death to be determined and declared by the relatives of the deceased. He expresses a strong opinion that an inquest should be held in every case in which the death is uncertified, unless the coroner can satisfy himself as to the facts, not by the report of a policeman or coroner's officer, but by that of a medical man who knew the deceased and who may have attended him recently. He thinks it especially necessary that an inquest should be held when the uncertified death is that of a young child, and he refers to the facility, no doubt only too familiar to him from official experience, with which undesired or illegitimate children may be got rid of. On June 20th, soon after the issue of the report and actually in the course of an inquest arising out of an explosion at Havorford, the coroner addressed the jury and the press on the subject of Mr. BARLOW's observations, and described them as "instructive, amusing, and inaccurate." The "amusing part," he said, "was that which ascribed to the lady sanitary inspector and the medical officer an ability to determine that all infants whom they had not seen either alive or dead would have lived if the mothers had received the lady's instructions as to feeding and care." We will not dispute with the coroner as to whether or not this "part" is "amusing," but will be content to point out that we have not been able to find it in the report. The coroner went on to say that if he "held inquests so as unnecessarily to obtrude into private sorrow, the whole of South Lancashire would be inflamed against him," and we trust that we shall not be thought wanting in respect either to the gentleman himself or to his office if we express a hope that the press report may be inaccurate and that he did not really say anything so foolish. Mr. BRIGHOUSE, however, went on to say that there had been "48 cases of uncertificated death instead of 38," and that every case had been "carefully investigated by the police," which was precisely the charge brought by Mr. BARLOW against the customary procedure. The coroner added that the police "often inclosed medical reports," that he had held an inquest in every uncertified case of the death of an illegitimate child which had been reported to him, and that the "reflections" cast upon him by Mr. BARLOW were "uncalled for," and not substantiated by any statistics or facts. The jury, at the close of the coroner's address, adopted a vote of confidence in him, and he, in expressing his thanks, "was glad to find they did not think him to be as black as painted by Mr. BARLOW." The health committee of the borough immediately took steps to support its officer, and three days later, on June 23rd, it passed a resolution fully approving of the observations in Mr. BARLOW'S report, "which contained no reflection on the district coroner," and expressing the opinion that the present mode of registering uncertified deaths is "highly unsatisfactory." On August 1st this resolution was accepted and confirmed by the borough council as a whole.

In the borough of Bootle, as in many other places, there may possibly be wheels within wheels the working of which is not immediately manifest to distant observers; but apart from this consideration it seems plain that the somewhat too sensitive *amour propre* of the coroner has led him to attach a sense of personal animadversion to words which should be interpreted only as a criticism of official customs. Our Registration Act has been in operation for nearly 70 years, and no one, unless it be Mr. BRIGHOUSE, now disputes that its provisions are insufficient for the proper protection of life, and especially of infantile life. Its deficiencies can be, and are in great part supplied by coroners, and we have no doubt that the general feeling among them is one of willingness to hold an inquest in every case of infantile death, in which there is even a suspicion that life may have been sacrificed by the negligence or the self-indulgence of parents. Except in cases of manifest violence the police are not qualified to make preliminary inquiries for the purpose of discovering the cause of death. They do not possess the knowledge necessary for sifting the statements made to them, and cannot form any sound conclusions concerning their probability or their value. The police are, as a rule, an excellent and a worthy body of men, but they are drawn from classes in which the traditional value of infant life is not high. It was, we believe, a jury of Devonshire farmers, empanelled to inquire into the cause of death of an infant discovered in a ditch, who returned the verdict "we find as it bain't no odds to nobody," but the sentiment of which this verdict was an expression is very widely diffused among the working classes, and not least among the rural peasantry, from whom our policemen are largely recruited. We wish that statistics were obtainable by which the infantile mortality of districts in which coroners are lax could be compared with the same mortality in districts in which they might be described as severe, for we have little doubt that a very marked difference would be displayed between them.

Annotations.

"Ne quid nimis."

POPULAR ERRORS REGARDING MUSHROOMS.

THE distinctions between edible and poisonous mushrooms are usually based on empirical grounds, with the result that mistakes of a serious nature may, and often do, occur. The subject has recently received the attention of Professor Labesse, who has described in *l'Anjou Médical* the characters whereby edible and poisonous mushrooms are distinguished in various localities. Many popular tests for determining the wholesomeness or otherwise of a mushroom are based on colour, odour, taste, and texture; on the presence of rose-coloured lamellæ or a milky juice; on the situation in which the fungi grow; and on the action of the mushrooms on various substances, including gold and silver coins, milk, and onions. Thus, according to one popular notion, mushrooms having a blue, violet, green, or red colour are unfit for food, but this test would exclude many wholesome fungi, including the green *Russula* and the green *Clitocybe*. It has been said that only mushrooms which do not change colour when cut are good to eat, but *Lactarius deliciosus*, some species of *Boletus*, and many other mushrooms which change colour are perfectly harmless, while, on the other hand, *Amanita muscaria* and some other fungi which do not change colour when cut should be avoided. Professor Labesse points out that the presence of an agreeable odour is not an infallible test of a good mushroom, as a species of *Amanita* (*l'Amanite phalloide*) is especially dangerous in spite of its pleasant odour. There is a dictum among certain amateur gatherers that a good mushroom has a grateful taste. This test is useful in many cases but not in all—e.g., *l'Amanite phalloide* and *la Fausse Orange* (*Amanita muscaria*) are scarcely bitter but quite unfit for eating. As regards texture it is generally regarded that compact, brittle mushrooms, with a dry skin, are edible, but Professor Labesse considers this to be a mere prejudice, as the eating of certain species of *Russula* would seriously indispose anyone placing confidence in these characters. Mushrooms with rose-coloured lamellæ are usually considered to be edible but this is a false notion, some species of *Volvaria* and other poisonous fungi possessing this character. Mushrooms with a milky juice are regarded as dangerous by some collectors but this rule must not be followed too literally as many excellent members of the genus *Lactarius* would thereby be excluded. The situation in which mushrooms grow is a very uncertain criterion of edibility. Thus, it would be dangerous to regard all mushrooms growing in meadows, open fields, and roadsides as good, since many suspected kinds grow in such places.

On the other hand, mushrooms growing in coniferous woods and under trees generally have been condemned, but the succulent *Lactarius deliciosus* grows in coniferous woods and the edible *Pholiota* grows under poplars, while species of *Helvella* and *Hydrum*, which flourish in shady woods form a wholesome dish. The blackening of a gold or silver coin or ring does not prove a mushroom to be poisonous; the blackening is generally due to more or less decay in the mushroom, as fresh mushrooms, whether poisonous or not, fail to blacken these metals. The curdling of milk by mushrooms is another property which has nothing in common with toxicity, the cause of the curdling being attributable to the presence of an acid or a ferment. An old custom consisted in dipping a white onion or a clove of garlic into the cooking vessel containing the mushrooms and noting whether the latter turned brown or not; the presumption that only noxious mushrooms are turned brown by this treatment is not justifiable, since some non-poisonous varieties do change colour in this way while some poisonous varieties do not. It is a common belief that slugs and insects attack edible mushrooms, but this is by no means universally true, as the deadly *Amanitas* are attacked by slugs, while many wholesome fungi are respected by these depredators. The tests so far described are largely of a rule-of-thumb nature, but another test which has received wide acceptance depends upon the fact that many poisonous fungi are surrounded by a *velum universale*, notable examples being the intensely poisonous subgenera *Volvaria* and *Amanita* and the puffballs. But, like all other rules, this is open to exceptions, including the genus *Agaricus*, to which the common mushroom, *A. campestris*, belongs. Professor Labesse considers that there are no practical empirical means by which amateurs may with confidence decide whether an unknown fungus is good to eat. There is often a risk taken in eating mushrooms, and those who do not wish to incur the risk are reminded by Professor Labesse of the method adopted by Gérard in 1850. He boiled the mushrooms for some time in salt water, threw away the water, and exposed the mushrooms to the air. He fed his family for nearly a month upon all kinds of poisonous mushrooms treated in this way and found them to be nutritious, though less palatable than mushrooms cooked in the ordinary way. Professor Labesse suggests that not more than one mushroom in ten is poisonous and that the best test consists in rejecting those which have a ring at the base of the stipe. Deadly mushrooms as a rule possess a ring or annulus consisting of the remains of the *velum partiale* which covers the young mushroom and is fractured during growth. In order to apply this test the mushrooms must be gathered with care. Unfortunately, in rejecting mushrooms possessing this character some excellent varieties are rejected in addition to the commonest poisonous varieties. Amateurs should know the characters of the mushrooms which grow in their neighbourhood, restrict themselves to certain kinds which they know to be edible, and in cases of doubt should abstain altogether.

THE PSYCHOLOGY OF THE SELFISH MOTORIST.

THE advent of the motor-car has afforded us an illustration of two human traits: one the long-suffering of some non-motorists, the other the blindness of some motorists to the claims of others to the use of the road. This latter trait has developed to such a degree that the medical question may arise whether we may not have here some pathological phenomena associated with the possession of a motor-car; whether, in fact, the driving of such a vehicle may not lead occasionally to such a condition of auto-concentration as to leave the driver for the moment utterly unmindful of all other interests than his own. Be this as it may, this callousness to the rights of others only became apparent with the introduction of motor-cars, and the disease, if so it may be termed, has undergone a marked exacerbation during the recent spell of rainless weather. Behind many motor-cars is a trail of blinding dust noticeable in some circumstances for fully half a mile, producing a temporary eye and throat soreness among those whom it envelops and rendering the air for the time being quite irrespirable. Of all this too often the selfish motorist appears to be entirely unconscious; he passes on his way regardless of all the discomfort which he occasions, unmindful of what he leaves behind, and concentrated alone on what is to be seen ahead. Without the least compunction he rushes through the villages, raising excrement-bearing dust into the atmosphere to be carried indiscriminately into the eyes and throats of the villagers and on to the meat, milk, and other articles exposed for sale as human food. Much of all this obvious injustice might be avoided were all motorists (as some are) possessed of elementary good taste or fellow feeling, and were ready to slacken speed in circumstances wherein the dust which is raised is likely seriously to inconvenience other users of the public thoroughfares. The pathological side of the selfish motorist is still further accentuated by the fact that for the most part he is creating a nuisance for his own private purposes. There is no reason, other than self-indulgence, why the selfish motorist should pass from one place to another under conditions which materially detract from the comfort of other people, raising fæcally laden dust and increasing the chances of dust-borne infections or augmenting the cough of the unfortunate consumptive living by the wayside. It must be recognised that there are motorists who are mindful of the comfort and claims of those who use the high roads for purposes other than those of pleasure, but their virtues are obscured by the failings of the unscrupulous scorcher, and they suffer with him in the general esteem.

THE PREVENTION OF CRUELTY TO CHILDREN ARISING OUT OF NEGLECT TO SEEK MEDICAL AID.

WE are all familiar with the cases in which parents or other responsible adults are indicted for manslaughter when a child has died, and it has been made plain at an inquest that life would have been saved by timely medical aid. Similarly actions for neglect arise when the child has been caused unnecessary bodily pain by the failure to provide medical assistance. Examples of this kind of legal proceeding have been afforded by the members of the sect called the "Peculiar People," who regard the summoning of medical aid as contrary to the teaching of the Bible, and sometimes by cruel and negligent parents obviously indifferent to the welfare of their offspring. "Christian Scientists" are apparently too well conversant with the danger of prosecution to carry their principles in the case of their children to the bitter end, and, so far as we are aware, no such prosecution as that recorded in another column (see page 696) has been instituted against one of them. We think it highly desirable that the full extent of the legal responsibility of parents in the class of cases indicated should be tested to the utmost before judges, but it is only possible thus to elucidate the law when ample pecuniary means for doing so are possessed by both parties. The case in question, it will be seen, is one in which, through no desire to be unkind to a child (who is still alive) and probably with a sincere desire to save him from suffering pain, a mother refused to submit him to a surgeon, and the National Society for the Prevention of Cruelty to Children acted as prosecutor in compelling her to comply with medical advice. We should like to see settled the extent of a parent's criminality under the statutes relating to cruelty to children in circumstances of this kind, and we print a full account of the proceedings for this reason. It will be plain to medical readers that Mr. E. MacDonald Judge gave his evidence fully and clearly, and gave none that he was not entitled to give. It will be seen also from the report that it was made quite plain by him that no surgical interference with the child would have been undertaken upon his opinion only, or without full examination and consideration by what the magistrate termed a "specialist"—i.e., by the surgeon upon whom the responsible duty of operating might fall. Mr. Baggallay said that "the society should have had a specialist," but how this was to be done he did not suggest. The mother had apparently at some time allowed Mr. Judge to examine her child, but she had refused to take him to the hospital. By what means could the mother have been compelled to submit her child to the examination of the specialist? In the absence of such examination a consulting surgeon, it is true, might have corroborated or contradicted Mr. Judge's deductions from the facts which he described, but there is nothing in Mr. Baggallay's observations to show that an opinion thus formed and expressed would have been regarded by him as satisfactory. But the high value set by Mr. Baggallay upon the specialist's knowledge is a little inconsistent with the order to the little boy to exhibit his powers of walking in the court, apparently in order that a layman might estimate the extent of the disease and the treatment required. We quite understand that on the face of it the necessity of a further operation seemed remote when the child was seen to cross the court without crutches, but only a surgeon can say how far such a feat has any real significance. Certainly the inferences could hardly be drawn from it that there was absence of medical evidence proving the necessity of operation, or that there was undue haste on the part of the National Society for the Prevention of Cruelty to Children. The mother had declared her intentions in plain terms not to have a further operation performed, but delay might be very undesirable in the interest of the patient. If we here mention the patient in the second place only, we do so in order to accentuate our view that throughout the hearing the feelings of the mother seem to have been the matter primarily considered, and that the good of the patient was treated as a matter of secondary importance. The prosecution might with advantage have produced the evidence of the surgeon at the hospital, or hospitals, where the previous operations had been performed, but it must be remembered that to bring such witnesses needlessly to a police court is undesirable and expensive; and prosecutions of this kind are not undertaken by the police or by the Treasury, but by a benevolent society whose means are not unlimited and whose methods and expenditure are rightly subjected to careful scrutiny. Mr. Baggallay is known to everyone as a humane and learned magistrate, but whatever the rights and wrongs of this particular case may be, questions have been opened up by it that have not been settled by the magisterial decision.

A CASE OF ANTHRAX AT EXETER.

A RECENT inquest held at Exeter disclosed a case of death from anthrax where probably a fatal result might have been averted had the infected person sought medical aid with promptitude, while the difficulty of tracing the source of the poison was strikingly exemplified. The deceased, a man named Burden, employed at a tanyard, observed pimples upon his left arm on August 11th, which had begun to be badly swollen on the following Wednesday. On the next day, Thursday, he first consulted a medical man, and on the following day, Friday, he was admitted to the Royal Devon and Exeter Hospital, where he died two days later, microscopic examination confirming the opinion formed at the hospital that he was suffering from anthrax. Evidence was given as to the care taken by the employers with regard to hides, as to the provision of gloves for the men, and the posting of notices to meet cases of the kind described. A member of the firm said that he would have driven the deceased to the hospital at once had he known of the symptoms when they first appeared. With regard to the origin of the anthrax, the firm dealt in English market hides, and for two or three years had not bought foreign hides, with the exception of 50 Oporto hides purchased three weeks before the man's death. These, however, according to the evidence, he had not handled, nor, in fact, had they been dealt with at all. The deceased had handled many hides during the days preceding the development of the symptoms referred to, but had only skinned one animal, to which attention was thus directed. It was a cow, the property of a farmer who was named, and it had died suddenly, but a veterinary surgeon had stated that it had been struck by lightning, and the deceased had observed a mark on its skin which, in his opinion, confirmed this view. It does not appear from the report before us that either the farmer or the veterinary surgeon was called to give evidence, but it is not easy to believe that they and the man who skinned the cow should all have been mistaken, and the case remains mysterious, as the jury found by their verdict, which ran: that the deceased accidentally contracted anthrax but that there is no evidence to prove how he did so.

THE TREATMENT OF ACUTE EMPYEMA BY SIMPLE INCISION.

THE current teaching is that empyema should be treated by resection of the ribs and drainage. In the *American Journal of the Medical Sciences* for July Dr. J. F. Leys advocates the treatment of acute empyema by simple incision—a simplification which he thinks ought to commend itself to general practitioners who do little surgery and are loath to undertake such an operation as resection of ribs. In the case of chronic empyema he admits that adequate drainage may not be secured without resection of one or more ribs. Such removal of bone is required when expansion of the lung does not proceed and is not an effective aid to the expulsion of pus. Special forms of drainage tubes he also thinks unnecessary. The treatment of empyema by simple thoracotomy is not new and has been successfully practised since the time of Hippocrates but has fallen out of fashion. In 1899 Dr. E. Andrews of Chicago deplored the fact that surgeons advocated resection of ribs in all cases of empyema. Professor W. Osler writes: "It is sad to think of the number of lives that are sacrificed annually by the failure to recognise that empyema should be treated as an ordinary abscess by free incision. The operation is by no means serious." Dr. Leys relates five cases of acute empyema successfully treated in the United States Naval Hospital by simple incision. They all occurred in boys between the ages of 16 and 17 years and in four the empyema was a sequel of pneumonia. The treatment was such as any practitioner could carry out. Local anæsthesia was produced with a lump of ice dipped in salt and held against the chest, with the ether spray, or with ethyl chloride. The instruments used were a scalpel for incision, a pair of blunt straight scissors for enlarging the incision, two pairs of hæmostatic forceps to hold open the incision for the flow of pus, to introduce the drainage tube, and to catch bleeding vessels if encountered, about 12 inches of three-eighth inch rubber tube fenestrated at intervals of an inch, and four large safety pins. All these instruments and the dressings were sterilised. The following is one of the cases. A lad, aged 17 years, was admitted on March 4th, 1901, with pneumonia of the left lower lobe. On the 17th there were signs of right pleural effusion. The temperature declined irregularly and was normal from the 18th to the 20th, when exploration showed that the effusion was serous. The effusion increased rapidly and the fever returned. On the 24th the effusion reached to the clavicle and 1925 cubic centimetres of creamy pus were removed by aspiration. On the 25th under local anæsthesia a free incision was made in the sixth interspace near the posterior axillary line. Two fenestrated tubes six inches long were inserted and about 1500 cubic centimetres of pus were removed. The temperature fell to normal. Good drainage was maintained and the wound was dressed daily. On the 31st pulmonary gymnastics were begun. By April 15th the daily discharge amounted to only two ounces. The tubes were gradually shortened and one was removed on the 19th. The pus contained an abundance of pneumococci and other cocci. The discharge continued until May 12th and on the 14th the second tube was removed. The fistula had completely healed on the 24th. Complete recovery was attained.

AN INTERNATIONAL CONGRESS ON THE CARE OF THE INSANE.

An international congress on the care of the insane (*Congrès International pour l'Assistance des Aliénés*) will be held in Milan from Sept 26th to 30th. The two principal subjects of discussion will be: (1) Improvements in the Care of the Insane and especially in their Home Care (*assistance familiale*) in various countries from 1902 to the present day; and (2) the Creation of Departments of Observation, Supervision, and Isolation in Asylums and Colonies, together with an account of the methods which have given the best results. Besides these there will be six subjects of discussion relative to the care of recently recovered lunatics; the care of special classes of insanity, such as delusional, epileptic, alcoholic, and moral insanity, with special reference to home care; psychiatric and neuropathological dispensaries; sanatoriums for nervous diseases; the economic and social results of the care of the insane; and the relation of the State to the care of the insane. Dr. L. Frank, superintendent of the asylum at Münsterlingen, Thurgau, Switzerland, will in the course of the meeting describe his scheme of an international bureau for the scientific study of the causes of insanity and the best means of prevention. The official languages of the Congress will be Italian, German, English, and French, the latter being recommended for preference. Members of the Congress pay a contribution of 20 francs and ladies accompanying them pay 10 francs. The treasurer, to whom remittances may be sent, is Dr. Edgardo Morpurgo, 5, Via Bigli, Milan.

THE USE OF ALCOHOLIC FLUIDS.

We have received from the secretary of the Newcastle-upon-Tyne United Temperance Electoral Council, Mr. Robert P. Moncrieff, the president of which is Dr. F. C. Coley, a copy of a circular which, we are informed, has been sent to every member of the medical profession in Newcastle, Gateshead, and Gosforth. The circular opens with a letter from Mr. Moncrieff stating that he declines to become an annual subscriber to the Royal Victoria Infirmary because sundry members of the liquor trade have consented to supply wines and spirits to the infirmary for 1906. The circular goes on to state that there is a great deal of falsified wine, that spirits are adulterated with a variety of matters, and concludes with a quotation, attributed to the late Sir B. W. Richardson, in which that physician says that when he wanted to administer alcohol he wrote it on the prescription as absolute alcohol. The circular ends with a query initialled by Mr. Moncrieff which runs as follows: "How can medical practitioners fulfil the conditions laid down by Dr. Richardson, when they employ brewers, publicans, and wine merchants as their dispensers?" We think that this circular is an unwise production. We are fully aware of the evils wrought by the over-consumption of alcoholic drinks. We are also fully aware that some brewers and distillers and wine merchants sell beer, spirit, and wine which are not everything that they should be, but the circular implies that the purveyors of liquor whose names are given will deliberately supply the Newcastle Infirmary with falsified stuff. It allows that vinous ethers do good in certain cases of illness but it asks, "If ethers are required why not administer them in a pure medicine?" Mr. Moncrieff ought to know, as he has taken up so vigorous and combative an attitude, that genuine brandy, rum, champagne, and burgundy, all of which there is not the slightest difficulty in getting provided application is made to a reputable house and the proper price is paid, do contain ethers "in a pure medicine." The controversy which is now going on concerning the use of alcohol entirely ignores the fact that all alcoholic liquors, apart from pharmacopœial tinctures, when administered in a hospital should be so administered on account of the secondary products which they contain. A circular such as that which lies before us defeats its own object, for its arguments are those of a person who has not studied the subject concerning which he writes. Perhaps Dr. Coley would be well advised to moderate the enthusiasm of Mr. Moncrieff.

THE OCULAR FACTORS IN SPINAL CURVATURE.

In the last three years Dr. G. M. Gould of Philadelphia has called attention in a number of papers to the far-reaching ill-effects of eye-strain, while his opinion upon European methods of refraction-testing is known to be highly uncomplimentary. In return several critics of Dr. Gould's theories consider that he sees the result of eye-strain in pathological circumstances where it has no existence. He has lately attributed spinal curvature to eye-strain, and this time his views appear to be in accord with those of other observers. If artificial astigmatism be produced in a normal person with a cylindrical lens at an axis of 75° vision will be obscured unless the head is tilted 15° to the right so as to bring the axis into the vertical line. Then the perception of vertical objects, such as trees, houses, letters of the alphabet, &c., is clearest. Similarly a patient with this astigmatism will tilt his head 15° to the right in order to obtain clear vision. In the *New York Medical Journal* of July 28th Dr. H. Augustus Wilson, professor of orthopædic surgery in the Jefferson Medical College, confirms Dr. Gould's conclusions and reports two cases. In 1900 a boy, aged 14 years, was brought to Dr. Gould with symptoms of eye-strain. The refraction was as follows: in the right eye, – S., 0·25 + C. 5·25, axis 75°; in the left eye, + S., 0·50 + C. 6, axis 75°. There was also spinal curvature. The ametropia was corrected and the patient was referred to Dr. Wilson for the treatment of the spinal curvature. He found functional scoliosis in one long curve extending from the pelvis to the head. The head was inclined to the right. The boy was in the habit of carrying a heavy bundle of newspapers under his left arm, while with his right hand he used to throw and fold the papers. This involved excessive use of the right side. After wearing the glasses for two months and undergoing a short course of exercises the spine became normal. In the second case, a girl, aged 14 years, was seen three years after deformity of th observed by her parents. She presented the usual form of S-shaped scoliosis with rigidity. The head was persistently tilted to the right. She was wearing spectacles which had been obtained from an optician and suffered from migraine. She was sent to Dr. Gould who found that her refraction was as follows: right eye + 0·87 + C. 0·62, axis 75°: left eye + S. 0·5 + C. 1·25, axis 90°. The ametropia appeared to have been at least a factor in the development of the scoliosis, for though the usual gymnastic and manipulative methods secured increased flexibility of the spine and greater muscular development, the head remained tilted to the right until the ametropia was corrected. After wearing suitable glasses for several days the head assumed a more normal position.

THE THIRD CONGRESS OF MEDICAL RADIOLOGY AND ELECTROLOGY.

This Congress, originally fixed to be held in the autumn at Amsterdam, has had its place of meeting transferred to Milan. Professor Bozzolo of Turin, one of the first among European physicians to prove the efficacy of radiotherapeutics in diseases of the circulation, has been chosen president of the organising committee. An adjunct to the Congress, at once novel and instructive, will be the "Esposizione" of apparatus illustrative of radio- and electro-therapeutics, many continental firms being represented in the exhibition rooms. All professional men desirous of assisting at the Congress are requested to communicate with the Secretary, Dr. Carlo Luraschi, 11, Via Sant Andrea, Milan.

THE ICE-CREAM SEASON.

On August 30th and 31st respectively an inquest and a police court summons were heard in London which were complementary the one to the other. The inquest was upon the death of a child, aged eight years, and was held at Stepney. Evidence showed that the child had eaten some ice-cream wafers bought from an Italian in the street. She was attacked with sickness and died on the following day. Mr. N. W. W. Meadows, who attended her, stated that her symptoms were exactly those of cholera. He considered that death was due to exhaustion from epidemic diarrhœa accelerated by eating ice-cream probably made under insanitary conditions. A verdict of death by misadventure was returned. On August 31st at Marylebone police court Angelo Romano, an ice-cream vendor, was summoned by the St. Pancras borough council for failing to take proper precautions for the due protection of the ice-cream sold or stored on his premises from infection or contamination. Dr. J. F. J. Sykes, the medical officer of health, in giving evidence, produced a utensil found on the defendant's premises which was used for the purpose of making up what are called ice-cream wafers. In the corners and angles was a quantity of fermenting and decomposing milk. Dr. Sykes remarked that there had been many cases of ptomaine poisoning in the district and that many children had died from diarrhœa after eating ice-cream. He further stated that anyone partaking of ice-cream taken from the utensil in the condition in which it was found would probably become ill. Mr. Paul Taylor expressed surprise at Dr. Sykes's remark that many children had died from diarrhœa after eating ice-cream, and fined the defendant 20s. and costs, saying that the case showed how important it was that the Act of Parliament should be enforced. So-called ice-cream, which is chiefly made of milk and eggs, is very popular among the poorer classes in hot weather and its method of preparation in many cases is filthy in the extreme. The Act of Parliament is doubtless sufficient if enforced with rigour but the difficulties in the way of inspection are very great. However, the well-known and extremely poisonous effects of dirty ice-cream should stimulate local health authorities to do everything in their power to prevent the manufacture of this sweetmeat under such grossly insanitary conditions as is not infrequently shown to be the case.

A CONTRIBUTION TO THE HISTORY OF MEDICAL LEGISLATION IN NORTH AMERICA.

In the American *Medical Library and Historical Journal* for April, 1905, Mr. Charles Perry Fisher, the librarian of the College of Physicians of Philadelphia, publishes the full text of a Bill which possesses some historical interest. It was entitled "An Act to Regulate the Practice of Physic and Surgery within this Commonwealth:" it had its first reading in the House of Representatives of the Commonwealth of Pennsylvania on March 24th, 1794, and was "ordered to be laid on the table." It was to have been brought up for its second reading on March 31st, but it was not read at that meeting and no further reference to it can be found. Apparently, therefore, the Bill did not become law. It is known, however, that medical legislation in America is of much older date than this, for Dr. Francis R. Packard in his "History of Medicine in the United States," published in 1901, states in the chapter on Medical Legislation in the Colonies that the General Assembly of New York on June 10th, 1760, passed a law regulating the practice of medicine in the city of New York, and that on Sept. 26th, 1772, an Act was passed to "Regulate the Practice of Physic and Surgery within the Colony of New Jersey." The Bill of 1794 consisted of four sections, the second of which provided that unqualified practitioners "shall forfeit and pay for the first offence the sum of fifty pounds ...... and for the second and every subsequent offence shall forfeit and pay the sum of one hundred pounds." One of the clauses stated that the Bill did not prohibit any person from drawing teeth, bleeding, or cupping, or from giving assistance in cases of sudden emergency.

THE PHYSIOLOGICAL ACTION OF A RECENTLY DISCOVERED AFRICAN ARROW POISON.

Dr. Charles Bolton has investigated the toxic properties of an arrow poison which was obtained by Dr. D. Alexander from a medicine-house at Ghasi, a pagan town in Northern Nigeria.[1] According to Dr. Alexander the poison, when fresh, forms a semi-fluid, sticky, black substance; it is smeared on sticks and is scraped off and heated when required for re-dipping the arrows. It appears to contain the juice of a variety of fig, the placenta of which is used in the manufacture of the poison. Dr. Alexander states that he saw a native shot in the abdomen with a poisoned arrow and that death resulted, apparently from failure of the heart, in about 25 minutes. Dr. Bolton dissolved the poison in 0·85 per cent. salt solution for intravenous injection into animals, including cats, rabbits, guinea-pigs, and frogs. He found that the poison selects muscular tissue for its action, but there is no evidence that it produces any action upon the central or peripheral nervous system. It paralyses the voluntary muscles and causes death by a direct action upon the muscular tissue of the heart. The first effect of the poison is to stimulate directly the muscular coats of the arterioles and thus to cause a rise of arterial pressure, with the result that the vagus centre in the medulla is excited, causing a slowing of the rhythm of the heart, together with a fall in the arterial blood pressure. The irritability of the heart muscle is greatly increased and soon the vagus fails to hold it in check: as a consequence the rhythm of the heart is accelerated and the blood pressure therefore rises to a higher level as the inhibition of the vagus is overcome. It is, however, probable that the chief factor in maintaining the high blood pressure is the constriction of the peripheral vessels. The rhythm of the heart becomes more rapid and irregularity appears, the heart finally passing into delirium cordis and ceasing in diastole.

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[1] Proceedings of the Royal Society, Series B, July 2nd, 1906, p. 13.

THE Huxley lecture will be delivered at Charing Cross Hospital Medical School on Monday, Oct. 1st, as we announce elsewhere. The lecturer for this year is Professor Ivan Petrovitsch Pawlow, professor of physiology in the University of St. Petersburg, who is taking for his subject "Recent Advances in Science and their Bearing on Medicine and Surgery."

THE Semmelweiss memorial which has been erected in the Elisabeth-square of Budapest will be unveiled on Sept. 30th. The ceremony will begin at 10.30 A.M. with a meeting in the hall of the University of Sciences. The memorial itself will be unveiled at midday.

FIRST REPORT OF THE EXPEDITION TO THE AMAZON, 1905.

(From the Liverpool School of Tropical Medicine.)

BY H. WOLFERSTAN THOMAS, M.D. MCGILL,
ASSISTANT LECTURER, LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

FOR the purpose of investigating the distribution of disease, and in particular of yellow fever, along the Amazon the expedition left its headquarters at Manaos, Brazil, and proceeded up the river. Iquitos, in Peru, was reached on Dec. 31st, 1905. A stay of three months was made there and a report, embodying the results of observations made during that period, has been drawn up for presentation to the Peruvian Government. The present communication is an abstract of that report.

The town of Iquitos lies along a high bank overlooking the river Maranon. Along the river front are situated the municipal buildings and the chief business houses. Parallel with the front road is the Calle de Prospero; on it are most of the shops. Numerous streets intersect it; these run from the river front back to the swamps and on them are situated most of the private residences. As Iquitos has increased in population the town has extended up and down along the river bank but the tendency appears to be to extend backwards in the direction of the swamps. The richer class occupy the closely-built central part of the town; the poorer class tend to congregate in settlements on its outskirts. The better class live in well-built houses; the poorer inhabitants in cane- or mud-walled huts. The roads are in a wretched state; they are undrained, full of ruts and holes, and in wet weather become almost impassable. Iquitos, especially along the river bank and near the swamps, is noted for the number of its mosquitoes. Houses near the river front are never free from these pests and unless wire screens are used the situation becomes intolerable after dusk. The poorer class store no water on their premises; it is brought as it is needed from neighbouring springs, and as a result mosquito larvæ were never found in their houses. 69 houses belonging to persons of the better class were examined. In 63 of them stegomyia fasciata was breeding; in six larvæ of culex were found. Neither water reservoirs nor privies are protected from mosquitoes by wire netting; stegomyia and culex were frequently found breeding in both. As is usual, stegomyia was found to breed freely in the various discarded pots and pans, bottles and barrels which invariably accumulate about tropical establishments. In the yard attached to one house were 16 large barrels, nine tubs, seven large oil cans, a large heap of empty tinned meat cans, and a collection of nearly 300 bottles. All were stored so as hold a little water. 90 per cent. of them contained larvæ of stegomyia fasciata. This house was noted for the number of its mosquitoes and at one time several deaths from "vomito negro" had occurred there. A general cleaning up of the yard was advised and all the disused barrels were stored end upwards. A marked diminution in the number of mosquitoes immediately resulted. The better class, educated and richer people, are therefore largely responsible for the large numbers of stegomyia fasciata existing at Iquitos. Nearly all the municipal and public buildings are sources for the propagation of culicidæ. Culex bred freely in the stagnant water of overgrown or chocked ditches, in pools of rain-water, and in holes along the river's bank. Larvæ of stegomyia were very rarely seen in these situations. Anopheles bred chiefly in the swamps near the town.

A general survey of the public health of Iquitos was made. Iquitos is, comparatively speaking, well situated and the better class are well housed, but the maintenance of the town is bad and the poorer class particularly live under unhygienic conditions. Drains are for the most part bad and usually consist of mere trenches cut in sandy soil; a few are constructed with cement bottoms and sides. None are properly maintained and they are consequently often blocked. In the poorer quarter there is hardly any attempt at drainage. There is no public water-supply; water for drinking is obtained from various springs or from rain-water stored in cisterns sunk in the ground. There is no adequate system of sewage disposal; badly designed and improperly maintained privies are frequently employed. The poorer classes of the inhabitants defæcate indiscriminately in every part of the town; as a result fæcal contamination of drinking water is common. Bacilli coli communis and eggs of ankylostoma duodenale were frequently found in water currently used for this purpose. There is no system of garbage disposal; household refuse is deposited almost anywhere.

Notwithstanding these insanitary conditions Iquitos is not an exceptionally unhealthy place. The prevailing diseases from January to the end of March, 1906, were whooping-cough, measles, bronchitis, and infantile diarrhœa amongst children; gastritis and gastro-enteritis, bronchitis, and malaria amongst adults. Other diseases seen were leprosy, amœbic dysentery, tuberculosis in various forms, and one case of epithelioma. Syphilis and gonorrhœa are very prevalent and are being disseminated along the rivers by launchmen and peddlers. The expedition had hoped to see cases of the "vomito negro" of Iquitos. This disease has a high mortality and is locally considered to be distinct from yellow fever. No cases of it or of yellow fever occurred during the stay of the expedition at Iquitos. It seems, however, probable, from information given by local medical men, that they are one and the same disease.

To obtain some idea of the prevalence of malaria amongst the general population 764 persons were examined. In the blood of 98 the "malignant tertian" type of malarial parasite was found. The majority of those infected were Indians and men employed in launches along the rivers. Only two were infected amongst 97 school children between the ages of four and 14 years examined at Iquitos. The hæmoglobin of these persons was examined at the same time as their blood. The low average amongst children, Indians, and the poorer classes was exceedingly striking, since it varied between 45 and 72 per cent. The blood of the better class showed a higher average, varying between 72 and 80 per cent. The explanation of this marked anæmia is believed to be ankylostomiasis. Practically all the native children are infested with this parasite. An accompanying infection with ascaris lumbricoides or various tæniæ was frequently observed.

The following diseases were observed amongst domestic animals at Iquitos. In cattle piroplasmosis, malignant œdema, and perhaps quarter evil. Trichinosis was seen in swine. Amongst poultry occurred chicken cholera and fowl diphtheria. Trypanosoma Lewisi was observed in rats.

From the data at our disposal we conclude: 1. That the town of Iquitos is relatively free from malaria and that the majority of cases occurring there have become infected in the rivers adjacent to Iquitos. 2. That ankylostomiasis is present and widespread amongst all classes; that the infection is spreading chiefly by reason of the unhygienic disposal of fæcal material. 3 That diseases other than gastric disturbances, dysentery, malaria, measles, and whooping-cough, are comparatively rare; that syphilis, gonorrhœa, and tuberculosis are now attacking the Indians. 4. That the present surface sewers are quite unable to drain the town properly. 5. That an adequate water-supply is urgently required. 6. That more rigorous sanitary laws are needed; that the sanitary department should extend its powers so as effectively to deal with (a) the removal of night soil; (b) removal of garbage; (*c*) prevention of the pollution of the springs; (*d*) prevention of the committing of nuisances; (*e*) the compelling of all householders to screen receptacles for storage of water, &c., to prevent mosquitoes propagating; and (*f*) a more thorough meat inspection and the prohibition of the indiscriminate slaughtering of animals outside the slaughter-house. 7. That a public hospital is greatly needed.

In the original report means of realising the desired improvements are suggested in detail.

Manaos, May 12th, 1906.

GLYCERINATED CALF LYMPH.

WE have received for publication the following Preliminary Report to the Local Government Board on the Results of Sustained Subjection of Glycerinated Calf Lymph to Temperatures below Freezing Point, by Dr. Frank R. Blaxall and Mr. H. S. Fremlin:—

These experiments were in the first instance undertaken to determine whether the active agent of vaccine lymph could withstand, without loss of potency, temperatures below the freezing point. Afterward they were directed to ascertain whether sustained subjection of glycerinated calf lymph to a temperature 5° (Centigrade) below freezing point could be utilised as a means of maintaining a reserve and store of lymph without risk of loss of its specific activity. General experience and numerous special experiments have shown that the agents most productive of weakness and failure in glycerinated lymphs are age and heat. Thus, the active "vaccine" agent present in crude lymph when collected from the calf loses its potency if subjected for five minutes[1] to a higher temperature than 57·5° C. Again, glycerinated lymph becomes vaccinally inert if kept at 37° C. for more than 36 hours. Similarly, the extraneous micro-organisms apt to be present in glycerinated lymph are eliminated the more quickly the higher the temperature to which the lymph is exposed.[2] At 37° C., for instance, their elimination is accomplished in 36 hours or less; contrariwise, at 10° C., and at lower temperatures, their elimination is very slow. It was anticipated therefore that if the everyday deleterious influence of heat on lymph could be neutralised, such tendency to loss of activity—which in present conditions is associated with "age" of lymph—might be greatly mitigated and a method of storing glycerinated lymph with full preservation of its potency thus obtained.

Our first experiments were commenced in January, 1900, with "freezing mixtures." Samples of glycerinated lymph contained in small test tubes hermetically sealed were placed in a mixture of ice and salt. The temperature to which the tubes were thus subjected was found to range in practice from 9° below to 10° above zero Centigrade; and no means being at hand of obtaining a low, and at the same time stable, temperature, the samples were at the end of a week withdrawn from the "mixture." These samples were then tested on calves, side by side with other samples of the same glycerinated lymph which throughout the experiment had been kept in an ice chest at 10° C. Excellent vesicles were developed by both sets of samples showing that the vaccine organism had not suffered any impairment of potency by an exposure of uncertain duration to a temperature of − 9° C.

Our second experiment was to subject samples of glycerinated lymph to a much lower temperature—namely, that of liquid air which is the equivalent of −180° C. This we were enabled to do by the courtesy of Dr. Macfadyen and Mr. Rowland of the Lister Institute. Samples from four glycerinated lymphs were placed in leaden capsules each holding about three cubic centimetres and these were inserted in a vessel containing liquid air, companion samples of the same glycerinated lymphs being kept as controls in an ice chest at 10° C. At intervals of one, two, three, five, and 11 weeks the samples were withdrawn from the liquid air for the short time necessary for allowing capillary tubes to be charged from them, similar procedure being adopted with the corresponding samples in the ice chest. These capillary tube samples of the lymphs were forthwith tested on calves to ascertain whether their potency had been affected. At the end of 11 weeks exposure of the samples to liquid air ceased but the experiment was prolonged by further storage, alike of experimental and control samples, in an ice chest at 10° C. for an additional 15 weeks with a view to testing from time to time and at the end of that period samples of both sorts on calves.

The results of the inoculations of the samples on calves were as follows. Up to 11 weeks the limit of the period of subjection of samples to the temperature of liquid air both sets of samples gave equally good vesicles on calves; no difference was distinguishable between them. Thus, sustained exposure to the temperature of liquid air for near upon three months had in no way impaired the potency of the glycerinated lymphs. On the other hand, the results obtained with the two sets of samples after the additional storage for 15 weeks at 10° C. were very different. Those samples which had in the first instance been exposed to the temperature of liquid air continued, after 15 weeks' additional storage at 10° C., to yield good vesicles on the calf, whereas the control lymphs yielded, after further keeping in like fashion, only poor vesicles or were quite inert. It appeared, indeed, that advantage had accrued to those sections of the glycerinated lymphs which had been subjected for 11 weeks to the temperature of liquid air.

Our third experiment was on a larger scale. It consisted in placing glycerinated lymph for a year in a "cold storage depôt" in London, in which the temperature was held to be maintained with great regularity at 23° F. or − 5° C. Samples from 92 glycerinated lymphs were taken for test in this sense. These samples at the date of the experiment varied greatly in age; the oldest was eight months and the youngest 16 days from the date of collection. Two samples, each consisting of about one cubic centimetre of emulsion, were taken of each lymph; and these were placed in separate small test tubes, corked and sealed. Each such test tube was then placed in a wooden case and this case was tightly corked. One set of 92 samples was placed in a sealed package and inserted in the cold store depôt on Oct. 3rd, 1902, and the other (companion) set, on the same date, was placed in an ice-chest at 10° C. in our laboratories. There they remained in each instance for one year. On Oct. 2nd, 1903, these packages were withdrawn from cold store and from ice-chest and their contents were examined. All the samples which had been stored at − 5° C. were in good condition but in the case of many of those which had been stored at 10° C. the emulsion had to a considerable extent soaked away or dried up. The several samples were now tested for potency on calves, inoculations being made on three separate occasions on these animals within a period of three weeks, the samples being meanwhile stored at room temperature. On each occasion each "cold store" sample was tested side by side with its companion ice-chest sample, on one and the same calf. As a result the "cold store" lymphs yielded 91·4 per cent. "insertion success," whereas the "ice chest" lymphs yielded no more than 16·2 per cent. (See Table I. annexed.) It deserves to be noted, moreover, that the failures with the "cold store" lymphs occurred only when these having been three weeks removed from the store had been further kept at room temperature. It was observed, too, that the vesicles yielded on the calves by the "cold store" lymphs were of better appearance and quality than those yielded by the "ice-chest" lymphs.

A fourth experiment on the same lines was made with 91 glycerinated lymphs. Two samples of each, taken as before, were placed in small glass test tubes, which were then corked and sealed, and each such test tube was in turn packed in a wooden case duly corked. On this occasion each set of samples was in addition inclosed in a tin box, the lid of which was soldered on, so that the box was hermetically sealed, the purpose being to obviate, if possible, the drying up of emulsions such as had occurred in the third experiment in the case of samples stored in the ice-chest. Of these 91 glycerinated lymphs the oldest at the date of the experiment was 13 months from the time of collection and the youngest nine days. The tin boxes remained respectively in the cold store at −5° C and in an ice-chest at 10° C for a whole year, at the expiration of which period the boxes were withdrawn and the contents examined. As before, the samples which had been in the cold store were found in good condition, and on this occasion drying up of those which had remained in the ice chest at 10° C. had to a considerable extent been checked, if not entirely prevented. All the samples were inoculated on calves, in the same way as before, on three occasions, the last inoculation being made 32 days after removal of the tin boxes from the cold store and from the ice-chest respectively, the samples having been kept after removal from the tin boxes meanwhile in an ice-chest at 10° C. As a result of inoculation of calves the "cold store" lymph yielded 98·9 per cent. and the "ice-chest" samples 41·8 per cent. insertion success. And, as before, it was noted that the vesicles yielded by the "cold store" samples were of better appearance and quality than those yielded by samples from the "ice-chest" (see Table II. annexed).

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[1] Medical Officer's Report to the Local Government Board, 1900-01, p. [illegible]

[2] Medical Officer's Report to the Local Government Board, 1902-03, p. [illegible]

The above two series of experiments showed definitely enough that, as tested on calves, cold storage of glycerinated lymph for a year at –5° C. prevents that deterioration and loss of potency which commonly occurs to lymph stored at the higher temperature 10° C. Bacteriological examinations were made of all these samples at the time of withdrawal from the cold store at –5° C., and ice chest at 10° C. respectively. The results showed that storage in glycerine for a year or more, whether at –5° C. or 10° C., serves to practically eliminate the contained extraneous organisms. At this stage, therefore, it was sought to ascertain the effect of the cold storage treatment on lymph subsequently employed in human vaccination. For this purpose 14 glycerinated lymphs contained in small scaled test tubes were packed in a hermetically closed box, placed in the cold store at –5° C. and were retained there for four months and 23 days. When withdrawn these lymphs were examined and tested for potency in the usual way. These preliminary tests having proved satisfactory the 14 lymphs were issued to public vaccinators on an average 19 days after removal from the cold store. Employed by public vaccinators in the vaccination of 16,771 individuals they gave a percentage success of: case, 98·8; insertion, 94·2; slightly higher figures than the average success-rate obtained in the preceding year with the current lymph of the establishment—viz., 98·4 per cent. case, 93·5 per cent. insertion, success. The current lymph of the previous year had been at the time of issue "aged" one month *to two months*, so that the cold store lymph in spite of its greater age gave higher percentage results than the lymph ordinarily issued.

From these experiments it would appear: 1. That in glycerinated lymph the active agent of vaccine not only can withstand freezing but can survive a temperature 180° C. below freezing point for a considerable time and this without loss of potency. 2. That glycerinated lymph can be retained in a cold store at –5° C. for a year without diminution of its potency, whereas glycerinated lymph, stored at 10° C. for a year, parts with its activity to an uncertain but considerable extent. 3. That sustained subjection to cold appears to be in no sense hostile to the active agent of vaccine; that, on the contrary, lymph thus dealt with was capable of producing excellent vesicles on calves and that the results obtained with it in human vaccination were wholly satisfactory.

F. R. BLAXALL.
H. S. FREMLIN.

TABLE I.—*Results on Calves of Glycerinated Lymph subjected to a Temperature of –5° C. in a Cold Store, or to 10° C. for 12 months, 1902–03:—*

Calves inoculated.	Date of experiment.	Results on calves.			
		Cold store, –5° C.		Ice chest, 10° C. (control).	
		Insertions:—		Insertions:—	
		Taken.	Failed.	Taken.	Failed.
1	Oct. 2nd, 1903 ...	45	0	0	45
2	Oct. 9th " ...	39	0	13	25
3	Oct. 23rd " ...	12	9	4	17
	Total	96	9	17	88
	Percentage success ..	91·4		16·2	

TABLE II.—*Results on Calves of Glycerinated Lymph subjected to a Temperature of –5° C. in a Cold Store, or to 10° C. for 12 months, 1904–05:—*

Calves inoculated.	Date of experiment.	Results on calves.			
		Cold store, –5° C.		Ice chest, 10° C. (control).	
		Insertions:—		Insertions:—	
		Taken.	Failed.	Taken.	Failed.
1	March [illegible]th, 1905 ...	90	1	40	51
2	March 31st " ...	89	2	37	54
3	April 14th " ...	91	0	37	54
	Total	270	3	114	159
	Percentage success...	98·9		41·8	

THE FORTHCOMING ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND AND WALES TO THE GENERAL MEDICAL COUNCIL.

WE have received the following circular with a request for its publication:—

To the Chairmen of the Divisions of the B. M. A. in England and Wales.

27, Wimbledon Park-road, Wandsworth, S.W., 1st September, 1906.
Telephone · 631 Battersea.

DEAR SIR,

ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND AND WALES TO THE GENERAL MEDICAL COUNCIL, 1906.

As you are probably aware the scheme prepared for the nomination through the British Medical Association of candidates for election to the G. M. C. this year has been abandoned. There seems, however, to be no reason why there should not be an organised attempt to return three medical practitioners who would prove acceptable to the majority of the profession as their representative on the G. M. C. In order to do this it becomes necessary for some one to take the initiative. I would therefore submit for the consideration of the members of the profession within the area of your division the following broad suggestions and would ask you (as the time is short) to be good enough to consult them by means of a meeting to be held before the 15th October under the auspices of your division. The suggestions are these:—

1. That as the time is short and only three are to be elected, no territorial arrangements be attempted.

2. That the whole of the local profession be asked to attend your division meeting. This could be done by inviting them to a scientific paper and discussion, and the question appearing as an item on the agenda. A copy of this circular could be sent if it were thought desirable.*

3. That each agenda do contain the names of all candidates known of up to date (see list at end of letter).

4. That this list of candidates is not to be limited to those who were nominated by the divisions of the Association.

5. That at each such meeting those present do vote. Each to have three votes. No plumping allowed. The chairman, who shall be scrutineer, with one other to be elected at the meeting, shall place against each candidate the total number of votes he has obtained, and post this list as provided in Clause 6.

6. That these lists be sent on or before Saturday, 20th October, to Dr. Hugh Ker, President of the Metropolitan Counties Branch and late resident in Birmingham district, who has kindly consented to act as scrutineer with Dr. Bateman (Medical Defence Union) and Dr. Hugh Woods (Ldn. & C. M. P. Society). The address is Tintern, Balham-hill, London, S.W. The envelope to be marked "*General Medical Council.*"

7. That those three candidates who have the highest aggregate total of votes be considered the candidates preferred and to be recommended to the profession. Each area participating shall at the meeting held to consider the list also pass a resolution to support in all ways possible these three whoever they may be (e.g., by addresses, by notices on all agendas, post-cards, &c., issued, &c. &c.).

8. These three names with their addresses will be sent for publication to THE LANCET and *Journal* on October 27th. The agenda calling the meeting could give this information in advance; and thus save subsequent circulars.

I append a list of those who are known to be candidates and have placed them in alphabetical order. I would explain that the divisions of the British Medical Association seem to offer the necessary local machinery for the above object, and this is the sole reason for availing ourselves of their aid. The union of the profession is our great object. I feel sure I need hardly add that I hope this communication will be considered by no means a dictation but rather an attempt to coördinate the profession in the consideration of a matter of vital importance to itself and trust you will cordially approve and support it. A similar attempt has lately been made in London to obtain the wishes of the profession as to certain candidates. No steps were taken to withdraw any candidate who was standing. A selection was made; every member was duly advised of the choice and the result was eminently satisfactory. No pledges whatever were asked or given. After the publication of the three names heading the list these candidates would be justified through their own committees or alone to take any advantage of the voting they considered desirable. There can be no expectation of a unanimous response to the scheme this year. I would only suggest that, as I am informed it will meet with the ready acceptance of a large number of the profession, we can hope that at future elections they will look to something similar as best suited to voice their wishes, and as a ready means by which to influence the indifferent members of our profession to vote for candidates generally recommended.

Believe me, yours faithfully,
LLEWELLYN WILLIAMS, Chairman,
Wandsworth Division, British Medical Association.

P.S.—If you decide to do what you can in the matter during the short time at our disposal, would you kindly send me a post-card, so that some idea may be formed of the progress being made.

List of candidates known.—G. H. Broadbent (Manchester), Geo. Brown (Cornwall), Langley Browne (West Bromwich), J. F. Bullar (Southampton), Andrew Clark (London), A. Godson (Cheadle), Geo. Jackson (Plymouth), H. A. Latimer (Swansea), L. S. McManus (London), J. Rutherford Morrison (Newcastle-on-Tyne), C. J. Renshaw (Ashton-on-Mersey), J. M. Rhodes (Manchester), F. J. Smith (London), J. Smith (Chiswick), C. R Straton (Salisbury).

* Copies of this circular can be obtained if ordered of me before Sept. 15th at the rate of 2s for every 50, or part of 50: if a large number were ordered the benefit of the printer's reduction could be obtained and money returned.

ENTERIC FEVER IN INDIA.

APPOINTMENT OF A STANDING COMMITTEE.

THE Standing Committee appointed by the Government of India to consider the prevalence and prevention of enteric fever in India held its first meeting on July 31st and subsequent days in the United Service Institute, Simla. The following officers who constitute the committee were present: Surgeon-General W. L. Gubbins, C.B., M.V.O., V.H.S., A.M.S., principal medical officer, His Majesty's forces in India (president); Lieutenant-Colonel J. T. W. Leslie, I.M.S., sanitary commissioner with the Government of India; Colonel R. H. Forman, R.A.M.C., principal medical officer, Bombay Brigade; Colonel D. Ffrench-Mullen, I.M.S., principal medical officer, Sirhind and Jullundur Brigades; Lieutenant-Colonel T. P. Woodhouse, R.A.M.C.; Lieutenant-Colonel D. Semple, R A M.C. (retired), director of the Central Research Institute of India; Captain Greig, I.M S., on special duty, Central Research Institute of India; Captain L. W. Harrison, R.A.M.C.; Captain E. Blake Knox, R.A.M.C. (secretary); Captain A. B. Smallman, R.A.M C.; and Lieutenant E. J. H. Luxmoore, R.A.M C. Major A. R. Aldridge, R.A M.C., sanitary officer, Army Headquarters, was also present as expert in army sanitation.

His Excellency the Commander-in-Chief (Lord Kitchener) opened the meeting and in the course of his address made the following remarks: "I have thought it necessary to form this Standing Committee to advise us in our efforts to reduce the amount of enteric fever among the troops in this country and to coördinate the work of the whole medical profession, both civil and military, in this direction. It is hardly necessary for me to tell you that the three principal diseases the ravages of which cripple our troops are *malaria*, venereal, and enteric fever. I am glad to say that with regard to the two former we have made very successful progress in limiting the evil but when we come to enteric fever we are still, I am afraid, very much where we were. Last year we had no less than 1146 admissions and 213 deaths from this disease. This is an improvement on the record of 1904 but I regret to note that during the current year up to the end of June we had already 513 admissions and 126 deaths from this cause. It is evidently the duty of every one of us to fight enteric fever in every possible way. The ravages of cholera, the curse of the army in India in days gone by, are now happily a reminiscence of the past, and if we consider enteric fever as a no less dangerous disease than cholera, and are equally energetic in stamping it out, I have great hopes that we shall succeed eventually in bringing this scourge in its turn under control. We know that the time when young soldiers are most subject to enteric fever is on their first arrival in this country and subsequently at certain seasons of the year when a prevalence of the disease may be annually anticipated. The general lines on which we should work are, I think, fairly clearly defined but the details of elaboration form, it appears to me, the crux on which I hope your advice and efforts will be of the greatest assistance to us in dealing with this most insidious disease. I may briefly suggest as the main outlines for our action: (1) sanitation of cantonments and barracks; (2) isolation of enteric patients; (3) detection of the origin of an outbreak or of a single case; (4) inoculation; and (5) blood examination. On the subject of sanitation a great deal has been written and the success which has resulted from much practical work has proved what good results can be achieved in this direction. Ambala, for instance, has during the last 12 months been an instance of the good fruit which care and forethought, combined with attention to detail, can produce, and in many other places we have evidence to convince us that our efforts are not in vain. Of course, sanitary reform means the expenditure of money, but money will not be wanting for this object if we can be certain that we are working on the right lines. I will not enter into the much discussed question of the propagation and conveyance of the enteric germ through the medium of water, flies, dust, &c. These are evidently all means of infection, each in their degree, and measures for neutralising their pernicious influence must therefore be taken. In this connexion I will lay on the table for your consideration an able paper on the Sanitation of Cantonments, recently written by Colonel Thornhill. As regards the isolation of enteric patients and those who have been associated with them, I believe the importance of this precaution is now more fully recognised and enforced than used to be the case. All clothing and excreta must, of course, be most carefully disinfected. The detection of the origin of outbreaks of enteric fever is a question of the gravest importance, but it is also one of great difficulty. More than once, however, conspicuously successful results have ensued when immediate and careful deductions have been persistently followed up. All cases of slight fever should be viewed with suspicion and the patient sent to hospital for diagnosis. Early diagnosis is an absolute essential, for it allows of early prophylactic measures being enforced. No efforts should be spared to ascertain the origin of an outbreak, or even of a single case, for on the correct results of such inquiry depend success or failure in preventing recurrence. Commanding officers and the whole military machinery of the unit should be associated with the medical officer in the search for the originating cause and the precautions to be adopted to prevent the spread of the disease should be at once communicated to all concerned. Full use should be made of blood examination in following up any clue that may be found. I now come to the important subject of inoculation. You are doubtless aware that we have for some time past been engaged on experiments in India in antityphoid inoculation and I am glad to say that great advances have been made on the old system which prevailed at the time of the South African war. By antityphoid inoculation we can assist the soldier's tissues to resist the disease by providing him with fluids in the blood which react on, and cause disastrous results to, any bacterial invasion by typhoid germs. That by this means we can obtain fruitful results in India is proved by recent experience. Take the 17th Lancers, for instance. This regiment landed in India on Sept. 28th, 1905. The total number of enteric fever cases from that date to June 15th, 1906, has been 61, of whom 11 have died. Of these 61 cases two only had been inoculated and both recovered. 150 officers and men of the regiment were inoculated. The value of inoculation in other cases has been equally proved. But though we have in inoculation a possible solution of this grave question, I wish to point out to you, gentlemen, that this method of treatment is still comparatively in its infancy, and though we have, I think, sufficient data to justify us in introducing the system generally into this country, I look forward to great improvement in its operation being arrived at in the near future through the devoted and untiring energy of the professional experts in the subject, both in India and at home. I further anticipate that careful investigation and practical experience will lead us still further on the path towards doing away with some of the drawbacks which now attend the process. I have placed blood examination last, though I have referred to it before as an important factor in following up any clue to the discovery of the cause of an outbreak. We all, I think, realise that many men may, though apparently quite well, be carrying about the germs of enteric fever in their blood, and thus become the means of transferring the disease to others. This is often the case with convalescents from enteric fever, even after a considerable period of isolation, and I consider that blood examination will therefore be of immense value in indicating to us where precautions are necessary and where our preventive efforts should be directed. As a layman I can only suggest these views for your consideration as experts, and I will now leave you to the consideration of the details of this most important subject, with the assurance that your views and opinions will be received by me with the greatest interest and in the confident anticipation that by following the practical lines which you may eventually suggest we may take an important step forwards towards stamping out enteric fever among our soldiers in India."

The committee then passed to consider carefully enteric fever with reference to its prevalence amongst various classes of individuals and communities in India. Statistics and evidence from the Army Medical Reports, the Annual Reports of the Sanitary Commissioner and others from the year 1856 being placed before it. The various sources of infection, excreta, fabrics, food, drink, &c., were then carefully considered and discussed in every detail and lines of present prophylaxis and a campaign for future prevention were laid down. In the matter of cantonment sanitation the committee had the advantage of the presence of the *Inspecting Officer of Cantonments (Lieutenant-Colonel* Thornhill, C I E.) whose views on this matter were of great assistance. The subject of antityphoid inoculation was fully dealt with. It is hoped that the decisions arrived at and the line of action laid down will have marked beneficial results not only to the health of the army but also to the community at large The committee after five full days' sitting adjourned until the middle of October when reports on the practical working of its various resolutions will be further examined and, if necessary, added to.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 6th, 1828.

THE REPORT of the Select Committee on Anatomy is an interesting, and, upon the whole, a satisfactory document. Mr. WARBURTON is especially entitled to the thanks of the profession and of the public for the zeal and ability which he exhibited as Chairman of the Committee; and although a wider scope might, perhaps, have been beneficially given to some branches of the inquiry, we are not on that account the less disposed to acknowledge the value of what has been effected by the labours of the Committee. ……

There is a part of SIR ASTLEY COOPER'S evidence, which is likely to have a stronger influence than any arguments which can be urged in favour of an alteration of the law, towards inducing persons of a certain intellectual calibre, to support any measure which may have the effect of putting an end to the practice of exhumation The worthy baronet has not hesitated to declare that there is no person, however exalted his rank, whose body, if he were disposed to dissect it, he could not obtain.

"Does the state of the law actually prevent the teachers of anatomy from obtaining the body of any person which, in consequence of some peculiarity of structure, they may be particularly desirous of procuring?—The law does not prevent our obtaining the body of an individual if we think proper; for there is no person, let his situation in life be what it may, whom, if I were disposed to dissect, I could not obtain.

"If you are willing to pay a price sufficiently high you can always obtain the bo[illegible]—The law only enhances the price, and does not [illegible] nobody is secured by the law, it only adds to [illegible]

This declaration is well calculated to produce an effect on the fears of persons to whose understanding reason could find no access. We shall have frequent occasion to return to the Report, and to the Minutes of evidence taken before the *Select Committee.*

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* We have given Sir Astley credit for what, we presume, he meant to say; but it is evident that the worthy baronet has with his wonted felicity of diction, made his throat appear rather to the living, than to the dead.

THE

BRITISH MEDICAL ASSOCIATION.

MEETING AT TORONTO.

(FROM OUR SPECIAL CORRESPONDENTS.)

THE seventy-fourth annual meeting of the British Medical Association commenced at Toronto on Tuesday, August 21st, under the presidency of Dr. R. A. Reeve, Dean of the Medical Faculty of the University of Toronto. This is the second time on which the Association has met in Canada, and the second time the place of meeting has been outside the British Isles, the other occasion being the meeting at Montreal in 1897. By Monday Toronto was beginning to get full of medical men from the United States, who are present in large numbers, while not a few members of the medical profession from Montreal, Quebec, and more out-lying provinces and cities of the Dominion had arrived. But the bulk of the travellers from England, Ireland, and Scotland did not arrive until the actual day of the opening ceremony. On the morning of Tuesday it was estimated that about 800 medical men had assembled, but by the time the proceedings of the congress were in full swing over 2200 members of the Association and accredited visitors were present. India, South Africa, Egypt, Australia, and the West Indies are all represented, while there are also visitors from Germany, and, as might be expected in Canada, from France. Many of the visitors from the mother country travelled by the Allan Line steamer *Ionian* and the Canadian Pacific Line steamer *Empress of Britain*, and on both vessels a most comfortable passage was enjoyed.

The choice of Toronto for the place of meeting was a distinctly happy one. The enthusiastic loyalty of the Canadians, their whole-hearted devotion to the mother country, and their more than justifiable pride in their own, with its vast extent and its great resources, perhaps nowhere find more open expression that in Toronto. Toronto strikes the visitor as the most English city in the Dominion in sentiment, but in outward appearance it is characteristically transatlantic. With a population of 262,749 it covers an area of 18½ square miles, possessing an extensive front to the lake. Its streets are for the most part wide and, with the exception of the most busy ones, well wooded, giving a peculiar charm to them, while there are no less than 25 public parks with an extent of 1640 acres. There is an excellent service of electric street cars which on some of the principal thoroughfares run almost continuously, so that it is easy to get from one part to another. Its public buildings are large, handsome, and in many cases beautifully situated, as pictures have recently shown in THE LANCET when illustrating the edifices connected with the Medical School. Toronto forms the meeting place of the two great trunk railway lines of Canada—the Grand Trunk and the Canadian Pacific, while a third great transcontinental railway line is in process of construction. It is consequently a great centre for travellers of all sorts.

The great influx of visitors, both from Canada and the United States, as well as the extra number of people visiting the city in connexion with the Annual Canadian Exhibition which opens on Monday, August 27th, combined to render the principal hotels full to overflowing, but a large number of those taking part in the meeting of the Association have either been entertained by private hospitality or most comfortably housed in some of the residential colleges near the University.

An informal dinner was given by the President-elect, Dr. Reeve, in the University dining hall on Monday, August 20th, to meet the Lieutenant-Governor of the Province, Mr. William Mortimer Clark, K.C., LL.D.

A number of the sections, which are all located in the University and its constituent buildings, held preliminary committee meetings on Monday with the view of arranging their programmes, a very necessary and useful precaution when the mass of material set down for discussion is remembered. There will doubtless be many disappointments, as some valuable contributions have been taken as read, but that was unavoidable.

The inaugural ceremony of the Association took place in the afternoon of Tuesday in the New Convocation Hall of the University, and was in all respects a successful and imposing function. The meeting opened with prayer by the Rev. Principal MacLaren, the head of Knox College, after which a valedictory address was delivered by Mr. G. C. Franklin of Leicester, the retiring President. Dr. Reeve, introduced by Mr. Franklin, was then installed as President, Dr. F. N. G. Starr, the local secretary of the Association, presenting him with the badge of office. Various notable visitors were then received, the Mayor of Toronto, Mr. J. Coatsworth, extending a hearty welcome in the name of the city to all her guests. Professor Irving Cameron, Professor of Surgery in the University of Toronto, Dr. Alexander McPhedran, President of the Canadian Medical Association, and Dr. George A. Bingham, President of the Ontario Medical Association, joined in the words of welcome of the mayor. Sir Thomas Barlow, Sir Victor Horsley, and Mr. Franklin were then made vice-presidents for life of the Association. The presidential address which was then delivered contained an able review of the progress of medicine during the last decade. The President said that the credit for the success attending the second visit of the British Medical Association to Canada must rest largely upon those who have given valuable help in various ways. It had been, indeed, a labour of love to bring from their posts of duty in the old homeland the select and the elect of the profession. The gathering was in a sense a cosmopolitan one. International comity had always prevailed in the profession; disease knew no distinction of country or race and was the common lot of humanity. In the face of an ubiquitous foe it was natural that the confraternity of the healing art should be undivided. He then gave an outline of the early history and progressive development of the British Medical Association, after which he proceeded to review recent advances made in medical knowledge, with special reference to Pawlow's investigations on the process of digestion, and the views expressed by Professor Chittenden of Yale University in his treatise on "Physiological Economy in Nutrition." He pointed out that the question of nutrition concerned all mankind, and said that when the teachings of physiological laboratories and college halls became common property there would be more plain living and high thinking, as well as less repining on the part of the masses, who were now aggrieved on account of their enforced moderation. It was the prerogative of the medical profession to show that nature's laws, rightly interpreted and adopted, were the only safe rule of life, and that much of the money spent on patent foods and so-called patent medicines was misspent. An ample supply of clean pure milk was a very great boon to a community, and service in keeping this question before the public had been done by the pediatric societies in the United States. The marked increase in the debt which medicine owes to physiology and physiological chemistry was acknowledged, and attention was called to the increasing recognition of the value of preventive medicine.

The meeting, the first general meeting of the Association, was then adjourned until the evening, when Dr. W. S. A. Griffith delivered the Address in Obstetrics.[1]

In the afternoon of Tuesday a huge reception was held at Government House by the Lieutenant-Governor of Ontario, who had issued upwards of a thousand invitations. On the same afternoon Professor Goldwin Smith, the famous and veteran historian and scholar, who resigned his professorship of history at Oxford 40 years ago and who for the past 35 years has resided in Toronto, gave a small reception at Toronto Grange to some of the best-known members of the Association. In the evening of the same day the President gave a large garden party in the quadrangle of University College. This form of reception was a novelty and a particularly happy idea, for Toronto was enjoying a spell of very hot weather when the meeting began, and it was inexpressibly pleasant to be able to congregate in the grateful cool of the evening air. An important dinner was also given by Dr. H. A. Bruce on the same evening.

The principal event of Wednesday, apart from the Address in Medicine by Sir James Barr[2] and the Address in Surgery by Sir Victor Horsley,[3] was the luncheon given by the Ontario branch of the Dominion Temperance Alliance to Sir Victor Horsley, Professor Sims Woodhead, and other prominent supporters of teetotal principles. 500 persons sat down to luncheon in the University Gymnasium. The temperance feeling is very strong in Canada and Sir Victor Horsley's assertion that the medical profession at home displayed the same hostile attitude towards alcohol as was shown by the guests of the Temperance Alliance was received with applause, though the statement would hardly have received the endorsement of the British Medical Association. Professor Sims Woodhead, who spoke in sequence to Sir Victor Horsley, appealed to the younger medical men to study the question for themselves, adding that all laboratory work went to show that the use of alcohol interfered with the condition of immunity.

A storm burst over the city on Wednesday afternoon and somewhat marred the reception given to members of the Association at the Toronto General Hospital by the trustees of the hospital. The rain unfortunately compelled the holding of the reception indoors; but some 350 guests made a visit of inspection to the wards. The cupola of the Grace Hospital was struck during the storm.

The annual dinner of the Association was held on Thursday night in the Victoria Rink, Huron-street, under the chairmanship of the President. Dr. Reeve, who was supported by the Lieutenant-Governor of the Province and Professor Goldwin Smith. Some 450 members of the Association and guests were present. In reply to the toast of "The King" the Lieutenant-Governor referred with warmth to the inexcusable ignorance which he said prevailed in Great Britain as to Canadian affairs. The toast of "The British Medical Association" was proposed by Professor Goldwin Smith in eloquent terms, his allusion to the service done to the world by the medical profession in the prevention of empirical murder being received with loud applause. The toast was acknowledged by Sir William Broadbent, other speakers being Sir James Grant, M.D., K.C.M.G., Mr. E. B. Osler, M.P. (elder brother of Professor William Osler of Oxford), Sir William Hingston (the eldest member of the British Medical Association in Canada), Professor Aschoff of Marburg, Dr. Lapicque of Paris, Dr. Mayo of Rochester, Minnesota, Dr. F. W. Mott, and Sir Victor Horsley.

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[1] THE LANCET, August 25th, p. 470.

[2] THE LANCET, August 25th, p. 473.

[3] THE LANCET, August 25th, p. 481.

On the same day a luncheon was given by the Empire Club in the clubhouse of the Royal Canadian Yacht Club on Toronto Island. The weather, in spite of a recurrence of thunderstorms, was bright and clear. Some very interesting speeches were made, the note of one and all being that the links binding Canada to the mother country are very real, and that it is the duty of all good citizens of the Empire to keep that chain intact by losing no opportunities of mutual comprehension and sympathy.

On the same afternoon the honorary degree of LL.D. of the University of Toronto was conferred upon 14 distinguished members of the Association[4] and visitors. The Dean of the Faculty of Medicine, Dr. Reeve, in presenting the recipients of the honour to Dr. Maurice Hutton, acting-President of the University, referred to the position and attainments of those present, and of Dr. Langley Browne, chairman of the Council of the British Medical Association, who received the degree *in absentiâ*. Speeches in reply were made by Sir William Broadbent on behalf of the British physicians honoured, by Mr. Franklin on behalf of the British surgeons, by Professor W. D. Halliburton on behalf of British physiologists, and by Dr. Lapicque on behalf of the French, German, and American recipients of the degree. It was further announced by Professor William Gardner of Montreal that at the next Convocation of McGill University, Montreal, the honorary degree of LL.D. would be conferred *in absentiâ* upon Sir Thomas Barlow, Sir William Broadbent, Professor Clifford Allbutt, and Sir Victor Horsley.

The annual pathological museum was held in the first floor rooms of the medical laboratories, in the same building as the pathological museum of the University of Toronto. The exhibits were of exceptional interest and included a series of specimens illustrating Dr. Klotz's paper on Experimental Arterio-Sclerosis, a series of specimens of congenital disease of the heart, and a series of photographs illustrating the facies of disease. One of the most interesting exhibits was that of Dr. W. H. Watters, of Boston University, Massachusetts, which comprised about 600 pathological specimens illustrating a gelatin method of mounting museum specimens. The preparations are first made by Kaiserling's method and afterwards placed in a solution of gelatin, glycerine, and potassium acetate, to which a little formalin is added. The specimen is put in place while the gelatin is liquid, and it is then allowed to solidify. This method preserves the colour better than the ordinary method of mounting in glycerine, while the specimen need not be kept away from the light. The gelatin remains clear and is prevented from melting, even in hot weather, by the formalin. This method has been in use for about five years and has given satisfactory results as regards permanency. Judged by the specimens shown it is an eminently satisfactory method. There were also a skiagraphic exhibit and a number of plaster casts of orthopædic conditions.

The annual exhibition was held in two large rooms and several smaller ones on the first floor of the main building of the University of Toronto, which is a handsome Norman Gothic building, beautifully situated in the university park behind the university buildings. It was therefore very conveniently situated for the members and visitors, being in the same building as the offices, registration rooms, and several of the sections. The rooms were decorated by a series of paintings and photographs illustrating scenes in Canadian life. Although there was a fairly large number of exhibits, with a few exceptions there were none of especial interest or novelty. The usual prominent British firms were represented, and there was an unusually large number of American exhibitors, as might have been expected, but of actual Canadian firms there were but few. Hospital furniture, operation tables, instruments, and special foods were much displayed, but the electrical exhibits and mechanical apparatus were among the most interesting exhibits. There were comparatively few new pharmaceutical preparations exhibited.

We should like to take the earliest opportunity of expressing our thanks to the many officers of the British Medical Association and residents in Toronto who have given us assistance and welcome.

OPENING OF THE LONDON MEDICAL SCHOOLS.

WINTER SESSION, 1906–07.

St. Bartholomew's Hospital.—The session will be opened on Oct. 1st by a dinner of old students in the great hall of the hospital.

Charing Cross Hospital.—The winter session will commence on Oct. 1st by the delivery of the sixth biennial Huxley lecture on Recent Advances in Science and their Bearing on Medicine and Surgery, in the anatomical theatre of the medical school at 4 P.M., by Professor Ivan Petrovitsch Pawlow of St. Petersburg. The dinner of the past and present students will take place on the evening of the same day.

St. George's Hospital.—The session will begin on Oct. 1st. The inaugural address will be delivered and the prizes presented by the Right Reverend the Bishop of Bristol on the same afternoon at 3 P.M. The annual dinner will be held in the evening at 6 30 for 7 at the Whitehall Rooms, Hôtel Métropole, Mr. Clinton T. Dent, senior surgeon to the hospital, being in the chair.

Guy's Hospital.—The session will commence on Oct. 1st and the opening meeting of the Pupils' Physical Society will be held on Oct. 13th at 8 P.M., when an address will be delivered by Professor T. Clifford Allbutt.

King's College Hospital.—The session will open on Oct. 2nd with an introductory lecture by Mr. Pridgin Teale, F.R.S. The old students' dinner will be held at the Hotel Cecil on the evening of the same day when Dr. Nestor Tirard will preside.

London Hospital.—The Winter Session will commence on Oct. 1st. The annual dinner will take place the same evening at 7.30 at Princes Restaurant; Mr. John Holroyde of Rochester will be in the chair. In the afternoon of the same day members of the staff will be at home in the library of the College to receive old students and to show them the recent additions and improvements to the hospital and College.

St. Mary's Hospital.—The Winter Session will open on Monday, Oct. 1st, with an Introductory Address by Dr. N. H. Alcock, lecturer on physiology and vice-dean of the Medical School. The annual dinner of past and present students will be held at the Whitehall Rooms, Hôtel Métropole, on Tuesday, Oct. 2nd, at 7 P.M., with Dr. M. Handfield-Jones in the chair.

Middlesex Hospital.—The session will open on Oct. 1st, when Dr. H. Campbell Thomson will deliver the inaugural address. The students' dinner will be held at the Trocadéro Restaurant on the same evening.

St. Thomas's Hospital.—The session will commence on Oct. 1st. On the same evening the old students' dinner will be held at the Hotel Cecil.

University College Hospital.—The session will be opened on Oct. 2nd at 4 P.M. by Professor R. J. Godlee, who will deliver the inaugural address on the Past, Present, and Future of the Medical School. The annual dinner will be held on the same day at 7 P.M. at the Hotel Cecil. Professor G. D. Thane will preside.

Westminster Hospital.—The session will begin on Oct. 1st. The annual dinner will take place on the opening day at the Trocadéro, Dr. F. de Havilland Hall, being in the chair. The secretary of the dinner is Mr. E. Rock Carling, 38, New Cavendish-street, W.

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[4] Sept. 1st, 1906, p. 625.

London (Royal Free Hospital) School of Medicine for Women.—The session will begin on Oct. 1st when Professor J. W. Byers will deliver an inaugural address on Medical Women and Public Health Problems at 4 P.M.

London School of Tropical Medicine.—The session will commence on Oct. 1st. The inaugural address will be delivered on Oct. 8th by Colonel Kenneth Macleod, I.M.S., when the Duke of Marlborough will occupy the chair.

MEDICINE AND THE LAW.

Medical Men and a Begging Letter Impostor.

Bruno Kohnfeldt is a German "described as a doctor," who apparently possesses enough education to be useful to him in a career of fraud without enabling him to make an honest living, for, according to his own evidence and that of the police, he has been since his release on ticket-of-leave in a very weak state due to starvation. He has, genuinely no doubt, tried to make money by journalism but has also written a large number of begging letters, in at least one of which he represented himself as a medical man, although he gave an address at which no surgery exists and no medical man resides. This letter was addressed to Bishop Kelly, late Bishop of Moray, and was couched in specious terms, recommending as an object of charity an imaginary patient stated to be an old university man in distressed circumstances. Medical men, who are especially liable to be the victims of impostors of this class are reminded that their own names and addresses, with the particulars of their educational careers, are open to the inspection of all who choose to make use of the numerous free libraries now in existence, and also that the claims made by honest but unfortunate people are rarely of so urgent a nature as to leave no time for inquiry and verification. Kohnfeldt has been sent to prison for nine months, in addition to which, we believe, he will have to serve the balance of his term of penal servitude, and he has expressed a wish, which we hope may be granted, to be deported eventually to his own country.

Child Insurance and Child Murder.

A very bad case of child insurance followed by cruel neglect of the assured, was brought to light recently at the Willesden police court. The persons charged were a man and woman living together in a house which was described by an inspector of the National Society for the Prevention of Cruelty to Children as clean, while the same witness deposed that the children were well cared for. The subject of the prosecution was the child of the male prisoner. He was a little boy, five years of age. He was filthy, ill clad, and emaciated, he was allowed to sleep where he could, and was so weak that he could hardly stand. An insurance agent gave evidence that he had been insured since May, 1905, at a halfpenny a week at first but later at a penny, and that on his death a sum of £5 would have been received by those whose duty it was to feed and maintain him. Naturally in such a case the most important evidence was that of a medical witness. Mr. Walter E Turner, medical officer at the Willesden Union Infirmary, described the condition of the little boy upon admission there, when he weighed 16 pounds, and explained to the bench that the normal weight of a child of his age would have been about 40 pounds. He had no organic disease and in the infirmary took food well, gaining 5 pounds in the first week and 11½ pounds during the interval between his admission and the date of the hearing of the charge. Mr. Turner was of opinion that the starvation had gone on for months, and that in a fortnight or three weeks it must have had its natural result in the child's death. The magistrate, Mr. George Wright, sentenced both prisoners to six months' hard labour. Those who feel satisfaction at this result and who, perhaps, regret that it was not possible to inflict a more severe punishment, will, no doubt, wish that child insurance, which may form a useful and praiseworthy provision against emergencies on the part of poor parents, should be so controlled as not to constitute a source of temptation to the cruel and covetous. It should not be impossible to render compulsory a system of inspection, to be established at the expense of the insurance companies, and to be applied in all cases where the lives of children are insured. The companies could hardly complain as the result of such inspection would be to diminish the number of unjustifiable claims made against them. The argument that it would diminish the number of insured children on their books would hardly be considered in their favour.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8784 births and 5592 deaths were registered during the week ending August 25th. The annual rate of mortality in these towns, which had steadily increased in the six preceding weeks from 11·7 to 17·0 per 1000, further rose to 18·4 during the week under notice. During the first eight weeks of the current quarter the death-rate in these towns averaged 14·1 per 1000, the rate during the same period in London being 14·0. The lowest death-rates in the 76 towns for the week were 8·1 in Smethwick, 8·4 in Southampton, 8·6 in King's Norton, and 9·2 in Reading; the rates in the other towns ranged upwards to 24·2 in Liverpool, 24·9 in Birkenhead, 25·9 in Coventry, 28·3 in Stockport, 29·2 in Wigan, and 29·7 in Yarmouth. The 5592 deaths in the 76 towns showed a further increase of 435 upon the numbers returned in recent weeks, and included 1876 which were referred to the principal epidemic diseases, against numbers increasing from 361 to 1623 in the six preceding weeks; of these no fewer than 1651 resulted from diarrhœa, 73 from measles, 53 from whooping-cough, 49 from diphtheria, 25 from scarlet fever, 25 from "fever" (principally enteric), and not one from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 6·2 per 1000 in the 76 towns and to 5·6 in London. No death from any of these epidemic diseases was registered during the week under notice in Handsworth, and the annual death-rate therefrom, was under 1 per 1000 in Bournemouth, Reading, and King's Norton; whereas they caused rates equal to 11·4 in Aston Manor, 11·5 in Birmingham, 13·3 in Birkenhead, 13·8 in West Ham, and 15·7 in Stockport. The deaths (mainly of infants under one year) referred to diarrhœa, which had steadily increased in the 11 preceding weeks from 50 to 1385, further rose in the week to 1651; the highest annual rates from this disease being 10·8 in Birmingham, 10·9 in Nottingham, 11·4 in West Ham, 12·4 in Birkenhead, and 13·6 in Stockport. The largest proportional fatality from measles occurred in South Shields, Stockport, Norwich, and Rotherham; and from whooping-cough in Walsall and Rotherham. Of the 49 deaths from diphtheria nine occurred in London, four in West Ham, and two each in Derby, Liverpool, Manchester, Halifax, Bradford, Hull, Middlesbrough, and Newcastle-upon-Tyne. Scarlet fever caused nine deaths in London, two in Liverpool, two in Bradford, and two in Middlesbrough. Three deaths were referred to "fever" in West Ham and two in Hull. No case of small-pox was under treatment in the Metropolitan Asylums hospitals during the week, no case having been admitted since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever Hospital, which had been 3051 and 3046 at the end of the two preceding weeks, rose in the week under notice to 3078; 350 new cases were admitted to these hospitals during the week, against 415, 308, and 317 in the three preceding weeks. The deaths referred to pneumonia and other diseases of the respiratory organs in London, which had steadily increased in the four preceding weeks from 101 to 119, declined again to 103, and were 17 below the corrected average in the corresponding week of the four preceding years, 1902–05. The causes of 47, or 0·8 per cent., of the deaths registered in the 76 towns during the week were not certified either by a registered medical practitioner or by a coroner. All but one of the causes of death were duly certified in London, and all were so certified in Bristol, Leeds, Leicester, Hull, Salford, and in 48 other of the large towns; the proportion of uncertified causes of death showed, however, a considerable excess in Liverpool, Sheffield, and Preston.

In 76 of the largest English towns 8663 births and 5556 deaths were registered during the week ending Sept. 1st. The annual rate of mortality in these towns, which had steadily increased in the seven preceding weeks from 11·7 to 18·4 per 1000, slightly declined to 18·3 during the week

On the same day a luncheon was given by the Empire Club in the clubhouse of the Royal Canadian Yacht Club on Toronto Island. The weather, in spite of a recurrence of thunderstorms, was bright and clear. Some very interesting speeches were made, the note of one and all being that the links binding Canada to the mother country are very real, and that it is the duty of all good citizens of the Empire to keep that chain intact by losing no opportunities of mutual comprehension and sympathy.

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[4] The Lancet, Sept. 1st, 1906, p. 625.

THE SERVICES.

Royal Navy Medical Service.

THE following appointments are notified:—Fleet Surgeons: F. A. Brice to the *Excellent*, for the *Revenge*, on recommissioning; J. McElwee to the *Britannic*, on commissioning; F. Fedarb to the *Dreadnought*, on commissioning; and E. C. Lomas to the *President*, for three months' study at Edinburgh University. Staff Surgeons: R. Waterfield to the *Excellent*, for the *Revenge*, on recommissioning; W. H. Thomson to the *President*, for three months' course at West London Hospital; H. H. Pearse to the *Minerva* and R. T. Gilmour to the *Talbot*, on recommissioning; J. C. Watt to the *Pelorus* and E. F. Mortimer to the *Sirius*, on recommissioning. Surgeons: J. Bourdas to the *Impregnable*, for dental duties; H. L. Norris to the *Sappho;* E. S. Tuck to the *Scylla* on recommissioning; W. F. Keir to the *Vernon*, for the *Furious;* H. Woods to the *Minerva*, on recommissioning; and P. D. MacJ. Campbell, to the *Sealark*.

Royal Army Medical Corps.

The undermentioned Lieutenant Colonels retire on retired pay (dated August 25th, 1906):—William H. Pinches, Michael J. Whitty, and Willington S. Dowman. Lieutenant George De la Cour from the Seconded List to be Lieutenant (dated August 1st, 1906). The undermentioned Lieutenants to be Captains (dated July 31st, 1906): John G. Bell, Maurice G. Winder, Frederick W. W. Dawson, Joseph E. H. Gatt, Robert M. Ranking, Thomas S. Coates, Albert E. B. Wood, James C. G. Carmichael, Roland H. Bridges, James A. W. Webster, Francis C. Lambert, James B. Meldon, Reginald C. Wilmot, Charles W. Holden, Harry B. Kelly, Edward M. Pennefather, George H. J. Brown, Benjamin H. V. Dunbar, David Ahern, Donald G. Carmichael, John M. M. Crawford, Charles Bramhall, Thomas E. Harty, Henry H. Swanzy, John H. Duguid, Henry T. Stack, Burnet G. Patch, and Geoffrey W. G. Hughes. The undermentioned Lieutenants are seconded under the provisions of Article 349 Royal Warrant, March 19th, 1906 (dated July 30th, 1906):—Benjamin Johnson, and William E. C. Lunn. The undermentioned gentlemen to be Lieutenants on probation (dated July 30th, 1906):—Gerald Hoey Stevenson, John Heatly Spencer, William Henry Forsyth, Alfred Herbert Heslop, Archibald Craig Amy, Wright Mitchell, James Archibald Bruce Sim, Edward John Elliot, Ernest Browning Lathbury, Edward Gibbon, Cecil Scaife, Robert Walter Dixon Leslie, Ernest Duncan Caddell, Michael Joseph Lochrin, Daniel Maurice Corbett, Benjamin Johnson, William Ernest Craven Lunn, John Rowland Foster, Arthur Hildebrand Jacob, Arthur Morris Benett, Francis Lyndon Bradish, George Philip Alexander Bracken, Owen Cunninghame Preston Cooke, William Wallace Boyce, Carlisle Kelly, Clarence Hamul Denver, Whiteford John Edward Bell, Duncan Coutts, William Francis Mary Loughnan, Dennis Thomas MacCarthy, Hector Lionel Howell, Charles William Bowle, John Joseph O'Keeffe, James Alexander Bennett, Thomas Walker Browne, William Irwin Thompson, Reginald Charles Galgey, Edward James Kavanagh, and Ernest Cyril Phelan.—Major G. B. Stanistreet has been appointed Staff Officer to the Principal Medical Officer of the Southern Command. Colonel E. North has been appointed Administrative Medical Officer in Dublin. Captain E. W. W. Cochrane has been selected to succeed Lieutenant-Colonel H. C. B. Elkington as sanitary officer to the Aldershot Army Corps. Captain S. A. Archer, on duty in Dublin, has been selected for Specialist in Ophthalmology in Ireland. Major C. R. Elliott, Fermoy, has been approved for appointment as a sanitary officer in the Irish command, with specialist pay, vice Lieutenant-Colonel R. L. R. Macleod, Dublin, who leaves for India in October. Lieutenant-Colonel R. W. Ford, D.S.O., has joined the London district for duty. Major J. Thomson has assumed medical charge of Military Families Hospital at Woolwich, vice Lieutenant-Colonel R. J. C. Cottell. Major G. St. C. Thom, having been ordered for service in India, has been succeeded as Adjutant of the Depôt and Training School, Royal Army Medical Corps, at Aldershot, by Captain E. T. F. Birrell from the Royal Army Medical College. Colonel P. M. Ellis has been appointed Administrative Medical Officer in India.

Indian Medical Service.

Lieutenant-Colonel J. Carmichael, R.A.M.C., has been appointed to the command of the Station Hospital, Jullundur.

Army Medical Reserve of Officers.

Surgeon-Lieutenant James N. Macmullan to be Surgeon-Captain (dated August 14th, 1906).

Volunteer Corps.

Rifle: 1st Volunteer Battalion, the Queen's (Royal West Surrey Regiment): Walter Gray Paget to be Surgeon-Lieutenant (dated August 25th, 1906). 4th Volunteer Battalion, the South Wales Borderers: Surgeon-Lieutenant W. P. Miles resigns his commission (dated August 25th, 1906). 1st Lanarkshire Volunteer Rifle Corps: Surgeon-Lieutenant R. H. Henderson to be Surgeon-Captain (dated August 25th, 1906). 3rd (the Blythswood) Volunteer Battalion, the Highland Light Infantry: Surgeon-Lieutenant P. M. Dewar to be Surgeon-Captain (dated August 25th, 1906). 24th Middlesex Volunteer Rifle Corps: Wyndham Anstruther Milligan to be Surgeon-Lieutenant (dated August 4th, 1906). 4th Volunteer Battalion, the Royal Fusiliers (City of London Regiment): John Kilpatrick Brownlees to be Surgeon-Lieutenant (dated August 29th, 1906).

Royal Hospital, Chelsea.

Lieutenant-Colonel Reginald J. C. Cottell has been appointed Deputy-Surgeon of the Royal Hospital, Chelsea, vice Lieutenant-Colonel R. W. Ford, D.S.O., whose tenure of that appointment has expired (dated August 17th, 1906).

Deaths in the Services.

Surgeon Herbert Bartlett Simpson, R.N., of the *Sealark*, on August 28th, at Diyatalawa, Ceylon (naval camp), in his twenty-ninth year. He was appointed surgeon in November, 1902.

Outbreak of Enteric Fever at Fleetwood Camp.

The serious outbreak of enteric fever in the officers' mess of the Militia battalion of the Loyal North Lancashire Regiment at Fleetwood calls for a searching investigation, which, indeed, it is bound to have. The outbreak in question, which is reported to have caused the death of three officers, was of an explosive nature and apparently circumscribed within very narrow limits. It was so strongly indicative of some common cause, and that of a concentrated kind, as to suggest at once water poisoning, and this very naturally appears to have been the direction of the inquiries that have so far been instituted. The training camp is the property of the Crown and at a little distance from the town. The outbreak of enteric fever was limited to the officers' mess, and the food is believed to have been altogether beyond suspicion. The water supplied to the camp is the same as that supplied to the town of Fleetwood and all neighbouring places, and Fleetwood's bill of health is quite clear. But all the dates and facts connected with the medical history of the occurrence, and the results of the bacteriological and other investigations, have still to be obtained.

Rifle Teaching at School.

We are glad to notice that the school rifle movement is being widely followed. The training of the hand and eye is useful and interesting to boys, and its beneficial effect will probably be seen in such other pursuits and occupations as they take up in the course of their lives. There are reasons also of a disciplinary and hygienic kind why a course of rifle shooting and elementary military drill should prove useful.

The Volunteer Officers' Decoration has been conferred on the under-mentioned medical officers:—Northern Command under notice. During the first nine weeks of the current quarter the death-rate in these towns averaged 14·5 per 1000, the rate during the same period in London being 14·4. The lowest death-rates in the 76 *towns during the* week were 7·2 in Northampton, 9·2 in Bournemouth, 10·1 in Hastings, *and 10·2 in Hornsey; the rates in the* other towns ranged upwards to 25·8 in Hull, 25·9 in Coventry, 28·7 in Yarmouth, and 30 4 in Stockport. The 5556 deaths in the 76 towns showed a decline of 36 from the high number in the previous week, and included 1977 which were referred to the principal epidemic *diseases*, against numbers increasing from 361 to 1875 in the seven preceding weeks; of these no fewer than 1765 resulted from diarrhœa, 64 from measles, 55 from whooping-cough, 37 from diphtheria, 34 from scarlet fever, 26 from "fever" (principally enteric), and not one from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 6·5 per 1000 in the 76 towns and to 5·6 in London. The annual rate from these epidemic diseases during the week ranged from 0 5 per 1000 in Halifax, 0·7 *in Devonport, and 0 8 in* Bournemouth, to 12·0 in Stockport and in Aston Manor, 12·3 in Coventry, and 12·7 in Salford. The deaths referred to diarrhœa (mainly of infants under one year), which had *steadily increased in the 12 preceding weeks from* 50 to 1649, further rose during the week to 1765; the highest annual *rates from this disease during the week were 9·6* in Nottingham, 9·8 in *Grimsby, 9 9* in West Ham, 11·4 in Aston Manor and in Salford, *and 12·3 in Coventry. The* largest proportional mortality from measles occurred in Wigan, Rotherham, and Stockport; and from whooping-cough in Huddersfield, Birkenhead, and Merthyr Tydfil. Scarlet fever caused seven deaths *in London*, six in Sheffield, three in Liverpool, and two in Swansea; and diphtheria 11 in London, and two each in St. Helens, Wigan, and Rochdale. Three deaths were referred to "fever" in West Ham. No case of small-pox was under treatment in the Metropolitan *Asylums hospitals* during the week and no case has been admitted thereto since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever hospital, which had been 3046 and 3078 at the end of the two preceding weeks, declined in the week under notice to 3042; 317 new cases were admitted to these hospitals during the week, against 317 and 350 in the two preceding weeks. The deaths referred to pneumonia and other diseases of the respiratory organs *in London which had been* 119 *and* 103 in the two previous weeks, rose again during the week to 109, but were *19 below the corrected average in the corresponding week of* the four preceding years 1902–05. The causes of 57, or 1·0 *per cent., of the deaths registered in the 76 towns during* the week were not certified either by a registered medical *practitioner or by a coroner. All the causes of death were* duly certified in Bristol, Salford, Leicester, Nottingham, and *in 45 of the large towns; the proportion of uncertified* causes showed, however, a considerable *excess* in Liverpool, St. Helens, Rochdale, Preston, Sunderland, and *Gateshead.*

HEALTH OF SCOTCH TOWNS.

The annual rate of *mortality* in eight of the *principal* Scotch towns, which had been equal to 11·8, 14·0, and 14·8 per 1000 in the three preceding weeks, *declined again to 13 8* in the week ending August 25th and was 4 6 below the mean rate in the same week *in the 76 English towns. The* rates in the eight Scotch towns ranged from 10·6 and 11·4 in Perth and Leith to 16·2 and 16 5 *in Aberdeen.* The 472 deaths in the eight *towns* showed a decline of 20 from the number returned in the previous week, and included 79 which resulted from the *principal* epidemic diseases, against 64 and 61 in the two previous weeks; *these 79 deaths were* equal to an annual rate of 2·3 per 1000, which was no less than 3·9 below the rate from the same *diseases in the 76* English towns. Of these 79 deaths, 54 were referred to diarrhœa, 11 to whooping-cough, six to "fever," four to diphtheria, three to measles, one to scarlet fever, and not one to small-pox. The deaths *attributed to diarrhœa* in the Scotch towns, which had steadily increased in the five preceding weeks from 11 to 37, *further rose* last week to 54, of which 30 occurred in Glasgow, six in Edinburgh, and five in Greenock. Nine fatal cases *of whooping-cough*, five *of "fever"* (including four certified as cerebro-spinal meningitis), three of diphtheria, and two *of measles* were also returned in Glasgow. The mortality from epidemic disease, other than diarrhœa, was *exceptionally* low in the other Scotch towns. The deaths in the eight towns referred *to diseases* of the respiratory organs, including pneumonia, which had been 68 in each of the two preceding weeks, declined in the week under notice to 52, but exceeded by eight the low number returned in the corresponding week of last year. The causes of 21, or 4·0 per cent., of the deaths registered during the week were not certified; the proportion of uncertified causes of death in the English towns did not exceed 0·8 per cent.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 14·8 and 13·8 *per 1000 in the two preceding* weeks, *rose again to 14·2* in the week ending Sept. 1st, and was 4·1 below the mean rate in the same week in the 76 English towns. The rates in the eight Scotch *towns* ranged from 11·4 and 11·5 in Paisley and Edinburgh to 19·6 in Perth and 22·9 in Greenock. *The 487 deaths in the eight towns* showed an increase of 15 upon the number returned in *the previous week, and included 80 which were referred* to the principal epidemic diseases, against 61 and 79 in the *two previous weeks; these 80 deaths were equal to an* annual rate of 2·3 per 1000, which was no less than 4·2 below the rate from the same diseases *in the 76 English towns. Of these 80 deaths* 48 resulted from diarrhœa, *11* from whooping-cough, 10 from "fever," five *from diphtheria, three from* measles, two from scarlet fever, and one from chicken-pox. The deaths attributed to diarrhœa in the Scotch towns, which had *steadily* increased in the six preceding weeks from 11 to 54, declined last week to 48, of which *28 occurred* in Glasgow, six in *Dundee*, four in Edinburgh, and *three both* in Paisley and Greenock. Eight of the 11 fatal cases of whooping-cough were returned in Glasgow and two in Aberdeen; nine of the ten deaths referred to "fever" (including four certified as cerebro-spinal *meningitis*) were *also returned in Glasgow.* Three fatal cases of diphtheria were recorded in Edinburgh and two in Glasgow. The deaths in the eight towns referred to diseases *of the respiratory* organs, including pneumonia, which had been 68 and 52 in the two preceding weeks, rose again to 61 in the week under notice, and exceeded by eight the low number returned in the corresponding week *of last year.* The causes of 17, or 3·5 per cent., of the *deaths registered during* the week were not certified; the mean *proportion* of uncertified deaths in the 76 English towns did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal *to* 16 8, 17·3, and 19·7 in the three *preceding* weeks, further rose to 21·5 *during* the week ending August 25th. *During the first eight* weeks of the current quarter the death-rate in the city averaged 19·0 per 1000, the mean death-*rates during the same period* being 14·0 in London and 12 8 in Edinburgh. The 156 deaths of Dublin residents *during* the week under notice showed a further increase of 13 upon the numbers *returned in the three* preceding *weeks, and included* 27 which were referred to the principal epidemic diseases, against *19 and 32 in the two previous weeks; these 27 deaths were* equal to an annual rate of 3·7 per 1000, the death-rate in the week from the same diseases *being 5 6 in London* and 1·2 in Edinburgh. All these 27 deaths were referred to diarrhœa (against 10 and 29 in the *two previous weeks), no fatal* case of small-pox, scarlet fever, measles, diphtheria, whooping-cough, or "fever" *having been registered in the city* during the week. The deaths of infants showed a marked increase during the week, while those of *elderly* persons were below the average. Six inquest cases and eight deaths from violence were registered; and 48, or 30·8 per cent., of the deaths occurred in public institutions. The causes of all but two of the deaths registered during the week were duly certified.

The annual death-rate in Dublin, which had steadily increased from 16 8 to 21·5 *per 1000* in the four preceding weeks, further rose to 21·9 during the week ending Sept. 1st. During the first nine weeks *of the current quarter the death*-rate in the city averaged 19·3 per 1000, the mean death-rates during the same period *being 14 4 in London and 12·6 in Edinburgh.* The 159 deaths of Dublin residents during the week under notice showed a *further increase of three* upon the numbers returned in the four preceding weeks, and believe that an alteration in the regulations will be for the good of the institution which they administer and of the public which it serves) it is right that the change should be made. We cannot express any conclusion as to the legality of the action of the governors. As to its advisability. our general view is that any modification of hospital rules which *tends to break down artificial barriers, purporting to divide* the medical profession into classes and sections, is for the good of the profession and of the public. Very large questions are opened by this aspect of the matter.—ED. L.

THE TREATMENT OF IRITIS, INTERSTITIAL KERATITIS, &c., BY ACETOZONE.

To the Editors of THE LANCET.

SIRS,—During the last 16 months I have treated all my cases of intra ocular inflammation on the assumption that they were the result of bacterial action and with gratifying results. The *post hoc ergo propter hoc* fallacy of basing the constitutional treatment on such history as is obtainable from the patient has been so far the rule of practice and the possibility that there may be no connexion between the constitutional disease and the intra-ocular inflammation habitually lost sight of. Are we to ignore the possibility of *organisms* that have no connexion with venereal disease causing iritis in persons who are the victims of syphilis? Iritis would not be diagnosed as gonorrhœal iritis in a syphilitic subject were it not for the urethral discharge. In this form of iritis it is practically certain the ocular condition is due to circulating toxins, and if we may assume as much in syphilis, rheumatism, &c., very important results follow, for bacteriology furnishes us with proof of the importance of early treatment, as, for instance, in diphtheria, in which disease the antitoxin is almost useless after the fourth day. A most unsatisfactory feature of constitutional treatment in syphilis and rheumatism is the slowness of its action. If in these diseases early treatment is imperative we must infer the toxins have done their worst and specific remedies will have little effect. Toxins being almost certainly albumoses, it follows that the blood should be hurried as frequently as possible through the liver to convert these bodies into urea and to the kidneys and skin in order that the urea may be excreted, and this metabolism will be facilitated by systematic exercise and copious potations of water.

I have made it a routine practice for several years to inquire into the condition of the bowels in all cases of eye inflammations and find, especially in children, that they are mostly very foul, the association being so frequent that it can scarcely be a fortuitous one. In the treatment of such cases I used to begin by the internal administration of resorcin or salol, but the former sometimes produced quasi-carboluria and the latter was apt to make the patient ill. Having found that acetozone, as in typhoid fever, could be used with advantage as an intestinal and general antiseptic in eye diseases I gave it first in three-grain doses dissolved in four ounces of water. Subsequently I increased the amount of water largely and my present method is as follows. The patient drinks a tumbler of water and takes a three grain capsule of acetozone immediately, after which he walks briskly for ten minutes and then takes a second glass of water and again walks for ten or 15 minutes. Four doses are taken daily—before breakfast, in the middle of the morning, in the middle of the afternoon, and in the evening. The results have been satisfactory; so much so that one will never revert to the old methods, and especially as it is probable that still better results will be obtainable by the supplementary use of recognised drugs, such as the inunction of mercury, &c.

Altogether I have used the acetozone-hydrotherapeutic treatment in 45 cases of iritis, interstitial keratitis, &c., and also in one case of syphilitic optic neuritis and two cases of sympathetic ophthalmia. If the cases of iritis are seen early, say, before the fourth day, the patient not infrequently experiences relief from pain in a very few hours and we frequently find all redness gone by the sixth or seventh day. We should, of course, as a routine procedure dilate the pupil as much as possible at the first visit.

The following cases treated by acetozone are of interest. (a) A case of sympathetic iritis with keratitis punctata that had been under treatment off and on for 12 months in the ophthalmic department of a large metropolitan hospital. At the patient's first visit to the Croydon General Hospital on Dec. 16th vision was $\frac{6}{18}$; on Dec. 20th it was $\frac{6}{6}$. Three weeks later vision was normal and the eye appeared to have made a perfect recovery. The patient was seen about ten days ago and the eye remains free from all traces of deposit. (*b*) A second case of sympathetic iritis. This patient came to the Western Ophthalmic Hospital on Nov. 17th with vision reduced to counting fingers (Dr. F. Hewkley). On Nov. 24th vision was $\frac{6}{24}$; on Dec. 1st it was $\frac{6}{6}$, and slight keratitis punctata; on Jan. 19th there was *no trace of deposits* even under high magnification. This patient was seen three weeks ago and the eye seemed to be free from all trace of disease with the exception of a little uveal pigment on the lens.

In all nine cases of interstitial keratitis, several of extreme severity, were treated by acetozone. In one case not only was the cornea absolutely opaque and salmon-coloured but bulged in a most alarming way. In the course of six weeks the corneæ had cleared sufficiently for the patient to get about and the vision is now $\frac{6}{36}-\frac{6}{24}$. In a second case one eye was entirely lost before the child came under my care and the sight in the other was reduced to seeing hand movements at a few inches. This, however, was relieved in less than a week, although all previous remedies used in an ophthalmic hospital had proved unavailing and the mother's gratitude was profound. The child is *still under treatment* but as the disease had lasted for many months and the corneæ were leucomatous before the child came under my care it is improbable that there will be any considerable improvement in vision. A third case that has been under treatment for over six months gave excellent results as regards vision ($\frac{6}{6}$), although the patient was unable to carry out his instructions properly on account of his work. One case with salmon patches recovered in three months with vision $\frac{6}{6}$ and another in eight weeks with vision $\frac{6}{6}$. The remainder are still under treatment.

The acetozone treatment has also been used in a case of syphilitic *neuro-retinitis* that progressed rapidly in spite of pil. hyd. c. creta, II. t.d. The disease was promptly arrested, the discs became normal, and vision $\frac{6}{6}$ easily in six weeks. The results in all forms of iritis were admirable and equally so in interstitial keratitis when seen within a week or so of the commencement of the disease. Indeed, in the latter two or three days at times suffice to remove the corneal opacity and nothing remains but a little keratitis punctata. In future cases there is no reason why the treatment should not be combined with inunction but in nearly all the cases treated by acetozone mercury has been tried for at least six weeks and in some cases for several months. The only objection to acetozone is the price and this is a consideration if the drug has to be used for several weeks. Doubtless in iritis this would be inconsiderable and the money wisely spent. Three-grain doses have excellent results but it is not unlikely larger doses could be given with advantage. The use of the drug by means of capsules may have its drawbacks, but this method has advantages, and in eye diseases there is not the objection to the exhibition of the remedy in solid form which might be offered in the case of enteric disease. However administered there is no doubt it should be given in eye cases with a much larger quantity of water than in typhoid fever. The limitations as to space prevent my taking up the bacteriology of the subject but I propose to deal with this on another occasion.

I am, Sirs, yours faithfully,

CHARLES WRAY, F.R.C.S. Eng.,
Surgeon, Western Ophthalmic Hospital; Ophthalmic
Surgeon, Croydon General Hospital and
Croydon Infirmary.

COEXISTENCE OF DISEASES.

To the Editors of THE LANCET.

SIRS,—I read with much interest your annotation on the Coexistence of Diseases in THE LANCET of August 25th, p. 515. In it the following sentence occurs: "The result of an infectious disease occurring in a tuberculous subject does not essentially differ from that found when a healthy subject is attacked except that in the former the powers of resistance are less and not infrequently an intercurrent affection is so badly borne as to threaten seriously the patient's life." That recalled to my memory a case that came under my notice some three years ago in which scarlet fever, (Rifle): 1st Volunteer Battalion the Northumberland Fusiliers, Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel Duncan Stewart. Eastern Command (Artillery): 1st Cinque Ports Royal Garrison Artillery (Volunteers), Surgeon-Major James William Thornton Gilbert.

In view of the approaching despatch of a draft of Royal Artillery to India, an order was recently issued at Woolwich that officers should ascertain the names of men, women, and children willing to be inoculated against enteric fever. Notwithstanding Lord Kitchener's recent remarks on the subject at Simla, the only volunteer was one man of the veterinary department.

The War Office has under experiment a number of ruck sacks—a bag of the Austrian type—which have been submitted to certain committees as a suitable method for the soldier to carry his belongings on service, as well as to replace the valise, which is now practically abolished in the British army.

The finger-print system is to be adopted in the United States Army as a means of identification of soldiers.

Correspondence.

"Audi alteram partem."

ON THE CORRECTION OF DEATH-RATES.

To the Editors of THE LANCET.

SIRS,—In Dr. T. F. Pearse's article on the "Correction of Death-rates," assuming the accuracy of his arithmetical calculations, he correctly sums up their result when he points out that the death-rate in Calcutta in 1904, calculated at the age and sex rates of mortality prevailing generally in Bengal, would be equal to 36·6 per 1000, whereas the death-rate of the Bengal population calculated at the age and sex rates of mortality prevailing in Calcutta would be equal to 38·7 per 1000. It is, however, impossible to agree with Dr. Pearse when he asserts that the difference between these two corrected rates proves the insufficiency of the method adopted by the Registrar-General for the correction of the crude recorded death-rate in a town or district for abnormality of the age and sex constitution of the population. It is obvious that in the case dealt with the Registrar-General's method shows what the death-rate in the Calcutta population in 1904 would have been if the sex and age rates of mortality had been the same as those that prevailed in the standard population of Bengal. The alternative method, on the other hand, shows what the death-rate in the Bengal population would have been in 1904 if the sex- and age-rates of mortality had been the same as those that prevailed in the population of Calcutta. Could Dr. Pearse have expected that these two entirely distinct calculations would have yielded identical results? As a matter of fact, this alternative method is adopted by the Registrar-General in his Decennial Supplement, but could not be used for his Annual Summary. Incidentally, the startling excess of the female rates of mortality recorded in Calcutta in 1904, shown in Dr. Pearse's Table A, suggests the probability either of a considerable under-statement of the female population of that city at the census in 1901, or of its rapid increase between 1901 and 1904, or of some other error in the recorded facts, since the Bengal female death-rates, given in his Table B, are considerably below the male death rates, as is almost invariably the case in all trustworthy mortality statistics.

I am, Sirs, yours faithfully,
NOEL A. HUMPHREYS.

Surbiton, August 27th, 1906.

To the Editors of THE LANCET.

SIRS,—The method of calculating corrected death-rates described by Dr. T. F. Pearse in THE LANCET of August 25th, 1906, p. 500, is practically the same as that given by Dr. T. W. Hime in his "Practical Guide to the Public Health Acts," second edition, 1901, pp. 544–548. Dr. Hime in a footnote observes that his results for Bradford differ very materially from those of the Registrar-General (23·38 as against 21·31 for males) and that the results of the latter are "wrong." In the case of Bradford, therefore, not a very abnormally constituted population, as in the case of Calcutta, the application of this method leads to a corrected death-rate considerably higher than that obtained by the Registrar-General's method. There are, as Dr. Pearse notes, two methods of making the required correction. The Registrar-General applies the mortality-rates adopted as a standard to the various age and sex groups of the population under consideration; while the other method applies the mortality-rates obtaining in the population in question to a standard population. The latter is the method preferred by Dr. Pearse and by Dr. Hime. Its use is negatived in very many instances by the fact that mortality rates in sufficient detail are not obtainable for the populations under consideration, whereas the age and sex constitution of all important populations is to be found in the census reports.

Dr. Hime, in his application of method No. 2, adopts as his standard population a "standard million," constituted as was the population of England and Wales at the preceding census; Dr. Pearse uses a "miniature population" of 847,796, the census population of Calcutta, constituted as was that of Bengal at the preceding census. The result obtained would have been exactly the same in each case had the total census populations of England and Wales and of Bengal respectively been utilised. If this had been done in the case of Calcutta, for instance, the various age-and-sex group populations in Table D of Dr. Pearse's article would have been increased in equal proportion (847,796 : 70,000,000, or, population of Calcutta : population of Bengal) and the calculated deaths in the same table would have been increased in the same proportion. Consequently the calculated death-rate obtained would not have been affected. The same thing may be shown in the same way for Dr. Hime's method, whence the practical identity of the two is obvious.

If, then, apart from mere variations in detail of application there are two principal methods by which corrected death-rates may be calculated, both apparently at first sight satisfactory in principle but yielding discrepant results, an important question arises as to which is to be preferred and why? This matter is, however, beyond the scope of the present letter and, as pointed out above, practical considerations will generally restrict the statistician to the method of the Registrar-General.

I am, Sirs, yours faithfully,
T. H. C. STEVENSON.

August 31st, 1906.

THE ROYAL BERKSHIRE HOSPITAL.

To the Editors of THE LANCET.

SIRS,—Some few years ago I was appointed physician to the Royal Berkshire Hospital under the following rule: "No person shall be eligible for the office of physician to the hospital unless he be a medical graduate of one of the universities of Great Britain or Ireland and his name entered on the Medical Register; neither shall any person be eligible who practises or is connected in partnership with anyone practising surgery, pharmacy, or midwifery." Recently this rule was altered to the extent that the practice of midwifery was to be allowed if desired. At the same time it was decided that two assistant physicians should be elected who were to have beds allotted to them and to have charge of the out-patient department and a physician was to be elected to form a skin department. This matter was never brought before the staff as a whole, neither were the physicians asked if they were prepared to give up beds or to give up their out-patients. At the election of the assistant physicians neither of the two conformed to the mode of practice demanded for the physicians and subsequently a rule was passed to meet their mode of practice, and at the same time they retain beds and have charge of the out-patient department, and one takes charge of a skin department so that by no chance does a physician have a skin case under his care.

I should be glad to have your opinion whether the physicians have been fairly treated in this matter and whether the governors are acting within their rights in taking away from the physicians the rights and privileges under which they came to take up the appointment in Reading.

I am, Sirs, yours faithfully,
FRANCIS HAWKINS.

Reading, August 1st, 1906.

⁂ An officer elected under one set of regulations has a distinct grievance if during his term of office the regulations are changed so as to affect his position. So far we are with Dr. Hawkins. But if in the opinion of the authorities the change is in the nature of a reform (i.e., if the authorities previous hour or two usually yields valuable evidence, while surveillance for an hour or so after the official examination is advisable. On two occasions I have negatived the charge of intoxication by proving the accused to be suffering from locomotor ataxy; in one of these cases the introduction of the patient into a well-lighted room had the effect of steadying his staggering gait. An examination of the eyes sometimes reveals a cause for obliquity: the discovery of night blindness accounted for the vagaries of one individual; the existence of previously undiscovered hypermetropic astigmatism dispelled a charge of carelessness in another. Again, while waiting about at the Guildhall I was called on to give medical evidence; the defendant, a van driver, squinted. I stated that he was most likely one-eyed. Investigation on the spot proved that to be the condition and influenced the verdict.

It is in sexual or obstetric cases that we meet with most of our problems. Questions are often asked as to pregnancy, paternity, &c., without any forensic involvement which, however, have a medico-legal interest. Once I was interviewed by an irate matron who produced her husband's blood-stained shirt, some black hairs collected from his coat sleeve, and from his coat pocket the unused half of a first-class return ticket to a well-known suburban resort. The lady argued from the position of the bloodstains that they were not from "his" person but "hers," and could I state if the stains were menstrual blood. I said that there was no proved distinction. The circumstantial evidence plus the *pieces de conviction* showed that the lady had a grievance, but I considered my friendly offices were better employed in pointing out difficulties of evidence and advising her to ignore for the present the presumption of guilt. Thrice I have been asked to examine girls with reference to virginity. In one case, where there was no specific charge, I refused to examine the young woman, pointing out that the result was nearly as likely to be negative as positive, and in the absence of a direct charge she was running the risk of an uncertain verdict which she was not compelled to do. The second case was that of a half-witted girl, aged 14½ years (now in a lunatic asylum), on whom a man was charged with rape; as she had apparently been a consenting party no marks of violence were visible, the lax and distensible hymen was untorn and the vagina dilated. I considered penetration possible but found no local evidence of force. Subsequent evidence proved that the girl was unchaste. The third case was that of a girl, aged 15½ years, whose bedroom a man was seen leaving; actual connexion was denied, and the girl objected to examination. I pointed out to the parents that she could not be compelled to submit, and that if I examined her it must not only be in the presence of witnesses but by her consent and in this case at her request. Result, *virgo intacta.* Circumstances requiring it, I once examined per vaginam a *virgo intacta*, aged 21 years, and found the os and cervix uteri deeply notched on one side; the condition was undoubtedly congenital but might have been taken for an injury resulting from delivery and led to the hypothesis of past maternity.

In some districts abortions and miscarriages are frequent and mostly occur without medical attendance, for the prevention of conception or the annulling the result are processes which appear to be now so well understood and so widely practised that application is not probably made so frequently in these days to the doctor to effect the process as formerly. Most of us have been asked to procure abortion. Such a request has been made to me on two or three occasions, and on each I have without undue delay confided the circumstance in all its details to some professional friend, whom I have requested to note in writing the case, that in the event of abortion occurring in my applicant, and accident or scandal accompanying it, I might be able, if necessary, to refute a charge of complicity. Several times while attending a miscarriage I have found small empty bottles labelled "pennyroyal" stowed away out of sight behind larger objects on mantle-shelf, chest, or dressing-table, and more than once has the patient confessed to the means she had adopted to cut short gestation.

Some months ago I was called to attend a woman whom I found very ill with uterine hæmorrhage and abdominal pain. She told me that during the previous week she had "lost a lot" and had probably miscarried. I found her to be suffering from an incomplete abortion and lead poisoning. She recovered after a long and serious illness and confessed that finding herself pregnant she began about the seventh or eighth week to take daily as much sugar of lead as would lie on a sixpence. She aborted at about three and a half months. In a case where I diagnosed internal hæmorrhage the woman was taken suddenly ill with very severe abdominal pain and died in a few hours. I found an empty bottle of "pennyroyal" and was told by the husband that the deceased believed herself to be pregnant again. By permission I, with the help of a brother surgeon, made a post-mortem examination and found a large quantity of blood in the peritoneum which had come from a burst vein in the left Fallopian tube. The patient was not pregnant and we could not find any evidence of an extra-uterine pregnancy. The case reminded me of the death of Miss Adelaide Neilson; she had an attack of gastralgia while driving in the Bois de Boulogne and died 12 hours later from syncope. Dr. Brouardel made a post mortem and "disclosed the extraordinary fact, one of the rarest in the history of medicine, that in her writhing she had ruptured a varicose vein in the left Fallopian tube, and had died of hæmorrhage." (Letter in *Times*, August, 1880.) Query, may not the hæmorrhage have caused the writhing?

That an experienced matron may erroneously believe herself to be pregnant hardly requires illustration. Mrs. S., the mother of several, engaged me to attend her one December. She sent for me in time. I found her in bed, with nurse, &c., in attendance and all in readiness; pains occasional. On examination I found her not to be pregnant, much less in labour, told her to rise and dismiss the nurse, and I prescribed for the stomach-ache. Two months later I was summoned to her again, this time for a miscarriage at about three months. Consequently she must have been about six or seven weeks advanced on the first occasion. On the other hand, pregnancy may exist without the cognisance of the woman; examples are plentiful. My first experience was years ago with a woman, aged about 44 years, who had been married 20 years without ever being pregnant. She sent one evening on account of severe stomach-ache and was much surprised on being informed that she was in labour. She was safely delivered with the aid of forceps. Suspicion and incredulity are naturally excited when an unmarried woman denies an existing pregnancy. Once I had a young woman persist in her denial even after delivery! But I think that ignorance may rarely be genuine. A "simple" and single woman, aged 35 years, living as one of a large family of brothers and sisters, fell in labour one evening. No suspicion of her condition existed. I was sent for to treat colic. I "looked" my diagnosis at her step mother, a matron of knowledge, only to be answered by pained disbelief. I am quite sure the patient herself did not realise the truth, until after a short, easy labour, she remarked: "It is a baby, then, after all." Paternity was admitted by the infant's father, who had gone abroad months before, after one intimacy. A call in the middle of one night fetched me to a confinement where I found the mother on the floor, and the baby, a fine boy, head downwards in a chamber-pot with water up to the brim. This was a fourth child, and two experienced matrons were present at birth, yet so frightened were they all that no attempt was made to save the child, though, as I pointed out, to knock the vessel over on to its side would have been sufficient. The infant was dead—drowned because of the nervous horror of those present. Had the patient been unmarried, and confined when alone, the circumstances might have excused the suspicion of infanticide, yet evidently the accident was possible.

Twice or thrice I have been called upon to decide before burial if the corpse were dead; in every case the body was that of a child and the presence of incipient putrefaction, in one case a fine greenish line along the free edges of the eyelids, left one in no doubt. These cases all occurred in cold weather, and the calm of the features with a tendency to rosiness of the face caused the doubt of the friends as to death.

A fine young man after shooting his employer (not fatal) shot himself. I opened his head and found the wound of entrance on the left temple a little above and in front of the left ear; the bullet traversed the brain and was found lodged against the inner table of the skull at a point somewhat behind and above the right ear. I gave it as my opinion that the deceased must have been left-handed; a relative was recalled by the coroner and stated that he was.

A middle-aged woman cut her throat with a razor one Saturday. I was fetched from a cricket-match three miles away. No one had touched her. She lay in a large pool of clotted blood on the floor of her cottage. I found her just living. The wound was four inches long and longitudinal in occurring as an intercurrent affection in a patient suffering from tuberculous disease of the hip-joint, *appeared to have* a beneficial and curative influence on the tuberculous condition.

A boy, aged seven years, was under treatment for tuberculous hip disease with a sinus discharging on the postero-external aspect of the thigh when he had an attack of scarlet fever. He was removed to the isolation hospital. A large abscess had now formed on the anterior aspect of the thigh in the region of the hip and *it was necessary to* operate. Under an anæsthetic the abscess was incised and a gauze drain was put in. For the next two or three days the boy lay in a very precarious condition and it was doubtful if he would recover. However, the fever abated and he began to improve. As convalescence progressed the tuberculous condition got very much better and by the time convalescence was established the tuberculous sinuses had healed. The change in his general condition was also very marked. At first he was thin and pale, but during convalescence he put on weight and when discharged was quite *fat and rosy. He was also able to run about* and had no discharging sinuses, a state of affairs which had not been his for over two years.

The question is whether the cure of the tuberculous condi*tion was influenced by the scarlet fever. I have not had an* opportunity of watching another case similar to the above. Of course, there is always the chance of the cure occurring at that time being a mere coincidence, but I must say I have never yet seen a tuberculous condition take such a rapid turn for the better.—I am, Sirs, yours faithfully,

August 25th, 1906. John Allan, M.B.

HÆMATOGENOUS ALBUMINURIA.

To the Editors of The Lancet.

Sirs,—I was interested to read Dr. E. Hingston Fox's article on this subject in The Lancet of August 25th, p. 497. Since the publication of Sir A. E. Wright's observation on the influence of calcium lactate in so-called "functional" albuminuria I have tested the point repeatedly. In four cases which I suspected to be of this type the albuminuria was readily controlled by the drug, but in cases with other evidence of kidney disease calcium lactate had no obvious effect. I therefore agree with Dr. Fox that it is a useful diagnostic test and that the primary cause of the albuminuria is the state of the blood. But I am inclined to think that he rather belittles the disturbance of the cardio-vascular mechanism in these cases. The great tendency to fainting, especially on standing for some time, and the appearance of albuminuria only after getting up, strongly suggest a lax condition of the vaso-motor system which, failing to compensate for the effect of gravity, allows both cerebral anæmia and back pressure on the kidney to occur. These considerations have led me to use digitalis as well as calcium lactate and, so far as I can judge, the effect has been good.—I am, Sirs, yours faithfully,

W. Langdon Brown.

Finsbury-square, E.C., Sept. 3rd, 1906.

THE GERMAN LANGUAGE AND MEDICAL MEN.

To the Editors of The Lancet.

Sirs,—I have received several letters from your readers which indicate that there is some difficulty in obtaining Messrs. Fiedler and Sandbach's little book. With your permission I will give the specification for order through a printer: "A First German Course for Science Students," by *H. G. Fiedler and F. E. Sandbach.* Alex. Moring, Limited, the De la More Press, 32, George-street, Hanover-square. 1906. 2*s.* 6*d.* net. I am, Sirs, yours faithfully,

Arthur Loxton.

Sept. 3rd, 1906.

SANITATION AT ST. MORITZ.

To the Editors of The Lancet.

Sirs,—In answer to an inquiry by Dr. T. W. Parkinson on this subject[1] there appeared in The Lancet on Sept. 16th, 1905, p. 854, a letter signed by Dr. J. F. Holland and Dr. P. Gredig which stated with regard to the winter season 1904–05 as follows: (1) that the main drainage was sound; *(2) that the public health* was in no way endangered; and (3) that the chief main drainage was then carried right out into the river Inn, whence it issued with torrential force.

The wish was no doubt father to the thought. It seems, however, on inquiry, (1) that the experts referred to in the letter had (as the authorities *frankly admit*) *recommended* that all drainage into the lake should be stopped and another system adopted, thereby showing that in their opinion the existing main system was faulty; (2) that complaints of suppurative tonsillitis and like ailments were extraordinarily numerous during the winter in question, and when septic illness occurs in an antiseptic air and the drains are subsequently ordered to be remodeled it is more likely that the public health was endangered than not, though actual typhoid fever, diphtheria, &c., were absent; and (3) that (as the authorities likewise admit) the new main system instead of *being complete on Sept. 16th, 1905, as stated in the letter,* was not complete in March, 1906, or expected to be so till later.

The fact is that St. Moritz had rapidly outgrown its sanitary system, and though the authorities assure us that they are doing their best to put things right the publication of a certificate by first-class independent professional experts *that the entire system, both* main and subsidiary, is now *perfected and up-to-date* would be more conclusive than any other assurance. At present the only promise obtainable (in March last) is that the work when complete will be certified by an authority, but by whom and whether or where the certificate will be published is not stated nor whether it will include the subsidiary system.

I trust I have said enough to show that there is nothing unreasonable in now asking for the publication of this certificate in The Lancet, especially as it is over a year since the London Sanitary Protection Association reported confidentially on the matter and suggested the necessary alterations. Such a step would at once remove the uneasiness to which Dr. Parkinson referred, and would be in the best interests of the place to which many of us owe much.

I am, Sirs, yours faithfully,

H. Campbell Jenkins.

United University Club, London, Sept. 3rd, 1906.

THE MEDICO-LEGAL EXPERIENCES OF A GENERAL PRACTITIONER.

To the Editors of The Lancet.

Sirs,—Though he gets it up for examination purposes the average general practitioner has but few important opportunities during even a long life of work of exercising his medico-legal knowledge. Even if a great or important incident *does come in his way the introduction* of an "expert" deprives him of much of any credit or glory obtainable. To most of us our medico-legal experiences *consist* of an occasional inquest which, in the majority *of cases, presents* no difficulty, medical or legal, and does not require the employment of the coroner's pet pathologist; an occasional lunacy certifying, which does often present some difficulty; and more rarely a police-court case—viz., assault, &c. Nevertheless, though great occasions are exceptional, minor incidents are not so infrequent in which interesting *medico-*legal points are involved.

At some time or another nearly every one of us must have been called upon to decide as to the sobriety or otherwise of a given individual, and much may depend on our verdict. The difficulty of *decision* is often very great and the gradations between "*dead drunk*" and "had been drinking but was not drunk" are many and subtle. Even the interval between the apprehen*sion of* the accused and the appearance of the doctor may have been sufficient to allow of the disappearance or modification of the signs of intoxication. The accused may lighten one's *task* by admitting to a glass or two, or *to* having "mixed." The most should be made of such admissions before imposing all those tests of sobriety *familiar* to the police, for it is possible for the man who has exceeded to pull himself together and neutralise the evidences of alcoholic excess and evade the pitfalls contained in polysyllabic alliterative lingual trials. In all cases the medical examiner should conduct his examination before *witnesses,* and *fortify* and support his opinion by the *testimony* of others whose *sobriety* should be undoubted. An inquiry into the history of the an appointment as an additional medical officer in my special department at our children's hospital. But my advances in this direction were met with chilling disapproval by the members of the hospital staff. I was speedily made to realise the strength of that barrier wall which is created by provincial hospital men as an exclusionary measure against other medical practitioners residing in the same town. Preventive and hygienic work amongst the children in the schools next offered attractions to me as seeming to afford scope for the energising of my somewhat restless spirit. I was abetted in this by the fact that the medical officer to the education committee was not particularly interested in eye, ear, and throat work. I therefore suggested collaboration with him in this special department, and even framed an elaborate scheme of special medical school inspection which, I believe, was not devoid of some redeeming features. Once again did vigorous opposition confront me. I was informed by one and caucus that I, a general practitioner, had ethically no right to assume possession of any special knowledge and experience superior to that of any other general practitioner. This trades union spirit animated the forces fighting against me and—triumphed. My next step was to organise a dispensary for children and diseases of the eye, ear, and throat, of a special, semi-gratuitous, self-supporting character. On discussing my little scheme with a London ophthalmic surgeon recently I was informed that its analogue can be seen in different continental cliniques, notably that of Dr. Darier of Paris, who was unprovided with a hospital appointment and devised his clinique to meet this want. My scheme went further. It was an honest attempt to solve certain medico-social problems. My medical brethren are attacking my dispensary work by deploying against it a system of covert slander which is more effective than open attack, for I am powerless to combat it. A little later I opened special consulting rooms in our professional square and on a brass plate advertised the fact that I attended at certain hours on certain days for special consultations on diseases of the eye, ear, and throat. This year in Ostend I saw to my joy similarly announced by a medical man consultations for *maladies des enfants*. With great interest I read in the letter of "S. H.' of the common custom in Germany and Austria of such door-plate indications. I also notified my patients of my new departure in professional work by means of a printed card and a notice on my bill-heads. For I had to work to live!

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[1] The Lancet, August 14th, 1905, p. 553.

These advertising methods have been deemed to be so atrocious that not one medical man has introduced a special case to me at the "Square," or has asked me to meet him in special consultation. My colleagues do not even trouble to reply to my letters respecting their patients who persist in consulting me. Whilst remaining personally friendly with one and all, professionally I am subjected to a boycott which daily menaces me in my practice. I thought to soften the hearts of my opponents by writing a little book which you, Sirs, kindly noticed in a recent number. I find, however, that the local medical men will not buy a copy even at 1*s.* net.

In conclusion, I contend that I have a legitimate right thus to push my "specialität," although a "practischer arzt," and that it is degrading to the profession for medical men to encourage, as they do, advertising opticians and hospital abuse, while ostracising members of their own profession. I write my pioneer experiences—*pour encourager les autres.*

I am, Sirs, yours faithfully,

August 27th, 1906. M.D., B.S. LOND., D.P.H. CAMB., &C.

To the Editors of THE LANCET.

SIRS,—I am but a comparatively young member of the profession and, no doubt, ignorant of much which may ere long cause me to modify the opinions of which I am at present possessed. I am, however, for the moment bound to aver that your correspondents appear to me to approach this subject from a point of view which is ethically incorrect. I have been connected for the past few years with a special hospital and have devoted a considerable amount of time to the class of disease which is there treated and, supposing that I have brought to bear upon that subject a fair amount of intelligence, may perhaps lay claim to some special knowledge of it. So far, however, as my own feelings are concerned I would not dare to call myself a specialist. I look forward to the time when the public shall regard me as a specialist and when my professional brethren shall know me as one, but to assume the appellation seems to me beyond my just right. The impression I have derived from my masters in medicine is that no one of them would like to call himself a specialist, though each one would like to be in possession of special knowledge of some particular branch of our science and art. It is at any rate a view with which I am content.

But the strongest argument which can be advanced against the assumption of the term specialist may be advanced from the side of the public. A man in want of a doctor seeing a brass plate with a name and a description of "physician and surgeon," or some equivalent, upon it, knows that within is one whom he may expect to have a reasonable amount of medical knowledge, at least as reasonable as medical authoritative bodies can make it. What is a member of the public to know when he sees the appellation of specialist upon a plate? It may be that the man within really has some special knowledge, or it may only be that he thinks he has, or it may be that he desires to give the public the idea that he has it, though in fact he has it not. In any event the man is applying to himself an adjective which no authoritative body vouches for.

I am, Sirs, yours faithfully,

August 29th, 1906. X.

To the Editors of THE LANCET.

SIRS,—It seems to me that the days are past when a man might make up his mind at the outset, or soon after, which branch of our profession he is going to adopt. Certainly this is true with respect to surgery. Let it be granted that a man at the beginning of his career says, "I wish to be a surgeon. I shall so far as possible arrange my work with that end in view. I am not a grasping man and I do not want a plum. I merely wish ultimately to practise surgery as distinct from medicine and I hope I shall be granted facilities for starting in that direction. I am willing to devote so much time to it and to lay out so much capital. Both are above the average amounts." I maintain that, however well such a man may carry out his intentions, however well he may ground himself, and however conscientious and perhaps clever he may be, he is in infinitely greater degree the victim of chance. For instance, it is in the first place, judging from the numbers published, at least two to one against his passing the primary Fellowship examination of the Royal College of Surgeons of England, an examination in two subjects each of which is far too vast for anyone to know the whole of it at once and in which there is no defined schedule. In each only about one tenth of the knowledge is of practical value, the rest is, as a matter of fact, soon forgotten to make room for useful matter. Any particular point in either can be, and is, at once easily revised for purposes of research or for operative procedure. It is said that one can make a certainty of passing this examination and that the best men get through. The first of these statements is quite inaccurate. At any one attempt the element of chance is utterly demoralising. The second statement is in the main true, though numbers pass who never deserve to and numbers fail who would make far better surgeons than many who pass. Many who pass become surgeons simply by reason of having passed, and, indeed, have never from the outset laid down for themselves any plans at all.

In the second place it is at least a two-to-one chance against our man in the final examination. So that only one-ninth of those who enter for the Fellowship of the Royal College of Surgeons of England obtain it. The result time and again is a great loss to the medical profession and to the country, because the requisite qualities of a surgeon cannot be determined finally and wholly by any sort or kind of examination. They might be found out by the apprenticeship system and if the results of original research work were taken into account. At present the quick-witted man with a good temporary memory, who can write quickly, though without a grasp of principles, may happen at the time to be thinking in the same way as the examiner, may pass, while a systematic, plodding man will fail. I maintain that among this eight-ninths of those who desire to become Fellows of the Royal College of Surgeons of England are many who have failed not because they showed themselves incompetent to make good surgeons but because the tests are not properly devised. Failing in examinations there is no alternative proceeding and they are driven to take position, running parallel to the right side of the larynx and trachea. The great vessels had escaped injury and she recovered after some weeks. She was watched by her relatives for some time, but giving no trouble surveillance ceased. Exactly one year after her first attempt, again on a Saturday, she successfully committed suicide by drowning in a shallow well, being found head downwards with the lid resting on her ankles.

It is astonishing what a healthy lot proposers for life insurance almost invariably say they are. Deliberate suppression of the truth or falsification is probably the exception, but unconscious bias in his own favour is, after all, only natural in the account given of his past health by an examinee. I always inquire of a proposer if he belongs to any benefit society or sick fund, and follow this up by asking how long he has been a member; then a tender inquiry if he has ever been on the funds and, if so, how often and for how long a time, and what for, usually brings to recollection some forgotten illness or indisposition. Quite frequently an individual will deny ever having suffered from rheumatism, but admits that he has had "growing pains." In these days of conscientious objectors and cranks it is as well to take note of vaccination. Insurance companies will probably find it necessary to revise their premiums in the case of the non-vaccinated, for that class is increasing all over the kingdom.

Recent legislation may bring the general practitioner more often into the law courts. The Workmen's Compensation Act offers chances which the malingerer does not neglect. We all know how fatal to fortitude is the fact that a sufferer belongs to two clubs, without the added inducement of compensation for accidental injury. That stock malady, the sprained back, an injury so easily obtained, so successfully simulated, so difficult to disprove, with its entirely subjective symptoms and absence of all objective sign, and so prone to recurrence, with the "railway spines" and "nervous shocks," will be supplemented by other maladies. Ordinary illness, such as a common cold, will be said to be an accident, the result of following one's employment in bad weather, &c.

I am, Sirs, yours faithfully,
G.P.

OPERATIVE TREATMENT IN CERTAIN CASES OF INSANITY.

To the Editors of THE LANCET.

SIRS,—In cases of simple insanity—cases which cannot be referred to any structural lesion of the brain—there can be little doubt that disturbance of the cerebral circulation is an important, if not the essential, pathological factor. Anæmia of the brain and symptoms of mental depression necessarily follow a diminished supply of blood to the organ, and, on the other hand, if it is abnormally increased, hyperæmia and mental excitement will be the consequent effects. In cases in which the quality as well as the quantity of the blood-supply is altered and in which an impediment to the return of blood from the head exists, the effect will not be so simple but will exhibit corresponding complications. Many cases of simple insanity, however, appear to depend almost entirely upon active hyperæmia and increased blood pressure. I allude to cases in which the individual's powers of perception, recollection, thought, emotion, and volition are all more or less intensified as well as perverted. The condition of these patients resembles very closely the delirious state of those suffering from pyrexia which is undoubtedly due to increased blood pressure. To the same cause also may be ascribed the mental excitement produced by stimulants and by the administration of ether or chloroform.

Delirium so closely resembles the acute form of mania that persons suffering from it have been improperly ordered into confinement as maniacs. The diagnostic difficulty is easily explained when we remember that increased blood pressure is the main cause in both cases. Again, in cases of mania the more acute the symptoms the greater the cerebral disturbance and insomnia, the more favourable is the prognosis. In such cases as soon as the flow of blood in the cerebral vessels returns to its normal state the mental derangement disappears, leaving the mind clear, as in delirium due to some febrile disease. There are cases, however, of acute mania which improve up to a certain point and then go no further but remain stationary for an indefinite time and at length exhibit signs of approaching dementia. Now the question arises, How is it that these cases do not recover? Is it because the arteries of the brain have become permanently enlarged and the supply of blood in such cases continues to be abnormally excessive? Can nothing be done to lessen the supply? Why not ligature the carotid artery with this object in view? I have a case under my care of this kind at the present time and should like to hear the opinion of some of your readers on the above suggestion. Would the operation be likely to be of any value? Would it be justifiable to perform it experimentally with the consent of the relatives of the patient?

I am, Sirs, yours faithfully,
August 31st, 1906. M.R.C.S., &c.

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

To the Editors of THE LANCET.

SIRS,—My attention has been called to a research by Dr. Dawson F. D. Turner, published in THE LANCET of July 28th, 1906, p. 223, under this title. It is quite impossible to obtain a measure of the concentration of a specimen of blood in salts by measuring the electrical resistance of the blood as Dr. Turner supposes. It has been shown by various observers—first of all by Professor G. N. Stewart[1] and Roath[2] independently of each other—that the coloured corpuscles are practically non-conductors owing to their impermeability to the ions of plasma.

The conductivity of blood depends not only on the salts of plasma but on the relative volume of corpuscles and plasma.[3] The reason why Dr. Turner obtains so marked a diminution of resistance in blood in pernicious anæmia is because the number of corpuscles is so greatly reduced. It is only by measuring the conductivity of the serum that any notion of its richness in salts can be obtained. I have published results of conductivity measurements[4] and freezing point observations on blood and serum in numerous diseases. In pernicious anæmia (three cases) I found no warrant for concluding that the proportion of salt is increased.

I am, Sirs, yours faithfully,
THOS MATHESON WILSON, B.A. Toronto, M.S. Chicago.
Physiology Department, University of Chicago, August 18th, 1906.

WHAT IS A SPECIALIST?

To the Editors of THE LANCET.

SIRS,—As a contribution to the correspondence under the above heading I venture to describe my own case. Four years ago (this coming December) I had to decide whether to resume medical practice as a specialist or as a general practitioner. During the preceding three years I had held a hospital appointment near London which offered me facilities to qualify myself specially in eye, ear, and throat work. The cult of pure specialism seemed to present undue financial risks. I therefore purchased a practice in a town with a population of 120,000 without a resident specialist, and having a children's hospital staffed by general practitioners without a single specialist appointment. I entertained hopes of being able to combine general with special practice. I was prepared to face difficulties, for my five years' experience of general practice had been of educational value in certain directions. On taking up my residence in the town I called upon an unusually large number of my medical brethren and after candidly explaining my position sought their support in my special refraction work, &c. In this connexion, however, I soon discovered that all my *confrères* were bonded by ties of medical fellowship and that they had no "side chains" for a colleague however specialised his claim for professional coöperation. For the first nine months I was content to assist four afternoons a week in the special departments or hospitals of an adjacent city whose medical might overshadowed the town in which I practised. Then I became impatient of playing the part of hospital drudge *pour passer le temps*. The Micawber-like spirit of waiting served me not. The desire possessed me to secure can ascend the Douro to the town of Oporto a port has been artificially constructed some three miles north of the mouth of the Douro by building great sea walls inclosing deep water where large ships can ride at anchor. On the breakwaters there are cranes and other facilities for landing merchandise, while in the north-eastern corner of the shore the new disinfecting and medical station has been built. It consists of extensive brick structures one storey, and in some parts two storeys, high with an embankment and frontage giving on to the water. Here the passengers and their luggage are disembarked and there are spacious waiting-rooms for them, arranged something like those of a railway station.

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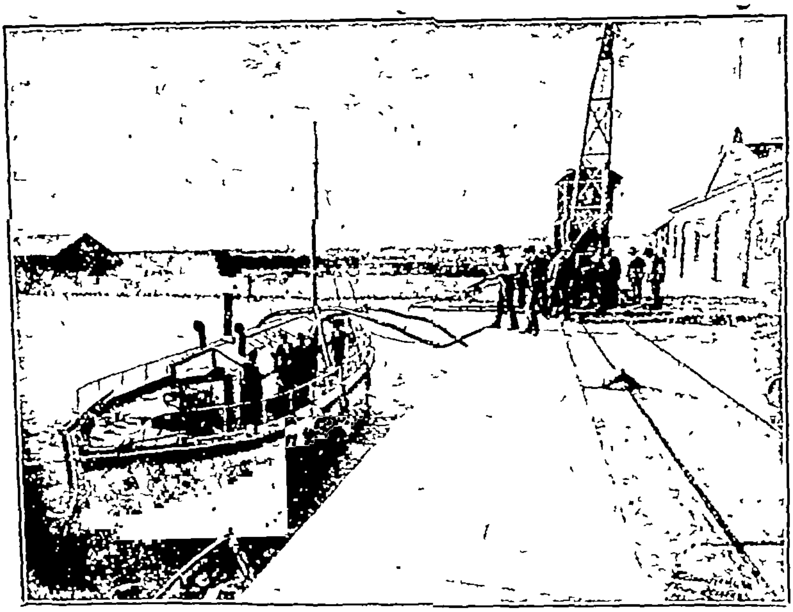
[1] Stewart: Centralblatt für Physiologie, 1897, p. 332.
[2] Roth: Ibid., 1897, p. 271.
Journal of Physiology, vol. xxiv., 1899, p. 356.
[3] Stewart: Journal of Physiology, March, 1906, and
[4] Wilson: American Journal of Physiology, August, 1906.

FIG. 1.



The boat containing the Clayton disinfecting apparatus and the pipes through which the fumes can be sent into all the disinfecting chambers of the station on shore or into the hold of a ship anchored in the harbour of Leixoes (Oporto)

Then, close at hand, there are a series of well-appointed baths. These the travellers approach from what might be described as the infected side and undress in a small compartment. While they are bathing in the next, or middle, compartment an attendant fetches all their clothes and places them within the disinfecting stove. By the time the bath is finished the clothes have been taken out of the other end of the stove and conveyed to the third or dressing chamber situated on the non-infected side of the baths. There are also large compartments where luggage and merchandise are disinfected or fumigated by various means. Finally there is a custom-house department where the purified goods are examined with a view to the imposition of custom-house dues Close to this part of the building are railway sidings, so that luggage or merchandise can at once be despatched to its destination.

For disinfecting purposes the Clayton system is very generally used, but instead of being on shore the apparatus is placed on board a boat. Thus it can be brought alongside of the ships that are anchored at some distance from land and there discharges the fumes that kill all the rats and other vermin living between decks. On the other hand, and as shown by the accompanying photographic reproduction, it can be connected with the building on shore. Pipes are jointed together and the fumes from the apparatus are taken to one of the disinfecting rooms. This is especially used for skins and hides that are hung up on the numerous pegs prepared for their reception. Naturally the work of disinfecting the cargo of a ship necessitates the employment of a large number of porters or dock labourers. Therefore it is not only necessary to provide large bare rooms where cargoes can be spread out and fumigated but there are a dormitory and a dining room for the dock labourers where they can dine and sleep while handling goods that may be infected. During that time these labourers are prisoners. They are only let out and allowed to return to their homes when, their work being done, they can bathe and have their clothes disinfected. In the meanwhile they must be provided with meals, and consequently a maritime disinfecting station needs a restaurant establishment on the same premises. Further, there must be means of conveying food from the kitchen to the infected portion of the station without personal contact. This is done by an aperture in the wall. The food is placed on a circular tray divided vertically by a partition which closes the opening in the wall. A pivot enables the loaded half of the tray to be sent round to the other side of the wall. In the same manner the plates are returned to the kitchen. This method is also employed for passing in the food and other things to the small isolation hospital with which the disinfecting station is likewise provided. Thus, a few patients could be removed from a ship and nursed at the disinfecting station. There is, however, no accommodation for placing in quarantine a number of passengers or sailors. If this was necessary the ship would have to proceed to Lisbon.

(To be continued.)

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Coöperators and a Liquor Licence.

SOME time ago an hotel at Gillsland was taken over by coöperators of the northern section of the Coöperative Union and converted into a convalescent home. The question then arose as to what must be done with the licence. Some considered it inconsistent for them to have anything to do with the liquor traffic. Others thought that if they gave up the licence someone in the neighbourhood would apply for it, and the facilities for drinking would remain the same, while the directors of the home would lose all control over the sale of intoxicants. The licence was retained. The question came up again at a meeting held on August 24th, when there was an animated discussion on the matter. A resolution from the Hartlepools Society dealt with it as a question of expediency, that it was hurtful to the best interests of the home, that a number of societies would not become shareholders on this account, and proposed that the directors be empowered to allow the licence to lapse at the next session. Many of the speakers said they up some branch of the profession which is uncongenial and so to "make a mess" of their lives.

Having, however, passed the examination for the Fellowship, and having so become qualified to follow his profession as a pure surgeon by reason of the appointments thrown open to him, the "fortunate" young man has to spend several years in which he might be improving the science and art he has adopted, and his own mind in particular, in grinding out the elements of anatomy to men who will never want one-twentieth part of what is taught them, or in writing a book before he has had the necessary experience of the subject. When he is past his prime he will perhaps get the chance of practising surgery. At a later stage, just when a record of his experience would be of infinite value to the profession, he is far too sick of it all to set it forth, and little wonder; moreover, he has no incentive in the form of future gain. I maintain that this state of things is not conducive to the advancement of the science and art of either surgery or medicine and it follows that the ranks of the specialist, who, either by natural selection or again by chance, are at present taken from a small class, are not filled so well as they could be were the process of selection different. This is undoubtedly to the great loss of the nation.

I am, Sirs, yours faithfully,

August 26th, 1906. UNLUCKY PLODDER.

PORTUGUESE QUARANTINE REGULATIONS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

PART I.

THE NEW LAW ON MARITIME SANITARY PRECAUTIONS.—THE NEW MARITIME DISINFECTING STATION AT OPORTO.

IN respect to maritime sanitation Portugal has a policy of its own. It is governed by a law dated Dec. 24th, 1901, which may be considered an improvement on the international convention adopted at Venice in 1897, though in several respects it is inferior to the international convention subsequently approved at Paris in 1903. In any case, the main practical fact is that communications with Portugal by sea are now less liable to be impeded by sanitary or quarantine regulations. Undoubtedly Portugal had good reason to be on its guard. It is a poor country and large sections of its population overcrowd very old and insanitary dwellings where they may lack sufficient or suitable food. But apart from these general predisposing conditions, there is a specific reason why the country should have frequently suffered from the importation of epidemic disease. A very large proportion of the maritime trade is with the Brazils and South America where yellow fever abounds among other pestilences, and Portugal has good reason to be careful especially in regard to yellow fever. The bilge water in the old wooden ships facilitated the importation of the larvæ of the stegomyia, and the conditions of the modern copper-bottomed ships are not so favourable to the development of mosquitoes, but, nevertheless, the precautions now taken are less irksome than formerly while losing nothing in thoroughness.

A few years ago when a ship arrived at Leixoes, which is the port for Oporto, it had to proceed to Lisbon if refused free *pratique*. This is a journey for a steamship of from 12 to 15 hours and involves a great loss of time, coal, and general working expenses. Lisbon was the only port in Portugal possessing a suitable disinfecting station for cases of yellow fever, plague, or cholera. When the cholera prevailed at Hamburg and at Havre ships could not land their passengers or goods at Oporto, for it took less than seven days to come from the infected German and French ports. So great was the trouble and the loss that the Oporto Commercial Association determined to erect a disinfecting station at its own expense and thus save the loss incurred in sending ships and passengers to Lisbon. The new law of 1901 rendered the expediency of such a measure more obvious. According to this law a Portuguese port can only be declared contaminated by the Minister of the Interior through the Director of the Department of Public Health and after the opinion of the General Inspection Services and of the Superior Council of Hygiene has been obtained. Even then the presence of cases of plague, cholera, or yellow fever can only be declared when their origin is such as to occasion peril from a sanitary point of view. Undoubtedly a considerable time must elapse between the notification of the first case and the accomplishment of the above stipulations. In the interval considerable mischief might be accomplished; nevertheless the law formally states that the Government alone has the right to proclaim the presence of epidemic disease in a port, and that the port sanitary authority shall not issue a *patente brute* till after such Government declaration has been officially made. It is known that there are three sorts of *patentes*. The *patente nette* is given when the sanitary and health conditions are all that is desirable. The *patente brute* makes no specification, and *patente suspecte* does not affirm that the state of health on board was good at the moment of departure. Thus it is evident that the Portuguese Government is very anxious that no unnecessary and premature alarm should be raised; yet it is equally evident that if there be any virtue at all in these sort of precautions this must depend on their being enforced in time.

In regard to the precautions which the new law stipulates must be taken against ships arriving in Portugal, these differ according to the supposed degree of danger, and many clauses in the Act are necessary to deal fully with these varying conditions. Thus there are ships coming from a healthy port with all well on board, but which have had some suspicious communication while in the open sea, or which have an unfavourable anterior record, or have no surgeon on board, &c. Then there are ships that have stopped for a short time in an unhealthy port. But, and so as not to enter into minute details, the main principle is that the ship must have been at sea seven days without there being any infectious case of sickness on board. If a ship arrives with all well on board but with a *patente brute* as coming from a place known to be contaminated, and has been more than seven days at sea, *libre pratique* is granted to all the passengers after they have undergone a rigorous examination. Their dirty linen, however, is disinfected. The ship and its cargo will be isolated and disinfected and the crew will be disinfected and subject to further medical examinations during seven days. If a ship under the same conditions has been less than seven days at sea the passengers are allowed to land, but they must undergo a rigorous personal disinfection and are only allowed to proceed to places where they can and will be watched medically till the seven days are completed. Should there, however, have been cases of illness on board, and even if these cases terminated by death or recovery more than seven days before the arrival of the ship, the passengers may be detained in quarantine but not for more than 48 hours, and then, when set free, they are to be watched when they reach their destination for seven days more. But this comparative leniency only applies to ships that are in a good sanitary condition and carry a surgeon and a disinfecting stove on board. If these conditions do not obtain then the ship is treated as if there had been cases of illness during the seven days previous to arrival. In that case the passengers are disembarked and isolated in a lazaret where they are kept in rigorous quarantine for seven days. Their luggage and persons are, of course, disinfected, as are also the ship and its cargo. The crew is treated in the same manner. When the danger is that of plague and if the ship has been to a plague-stricken port within the previous three months, or has on board goods coming from a plague-infected locality, all the rats on board must be destroyed and some of them sent to the bacteriological laboratory for examination. If the analyses show the presence of plague among the rats then the entire ship and its cargo must be rigorously disinfected. The same measures must be adopted if the rats die spontaneously on board in such a manner as to make it appear that they are suffering from plague.

Such being some of the more important regulations it will easily be understood that large maritime stations desire to have within easy reach all that is necessary to carry out the law. As, however, the Government is slow to provide the means of applying its own law, the merchants of Oporto spent out of their own pockets some £33,000 to build a disinfecting station at Leixoes and thus avoid having to send ships to Lisbon. Dr. Oliveira is at the head of this institution, and when I was passing recently through Oporto, he very courteously invited me to visit it. As only small ships houses have been built and 175 new streets have been laid out. Water carriage of excreta is almost universally adopted and a well-equipped isolation hospital receives 80 per cent. of the cases of infectious disease occurring in the borough. It might be expected therefore that Newport would have a much better record as regards infantile mortality than some of the large northern towns which are not so well circumstanced either as to housing accommodation or with respect to other sanitary conditions. During the ten years 1895–1904 the infantile mortality rate averaged 159 per 1000 births and in 1899 it was as high as 188 per 1000 births. In 1905 it was 126 per 1000. This decrease in the mortality among young children is due in part to the improved water-supply and in part to the employment of a female health visitor. For several years prior to 1904 there was a distinct shortage of water in the summer months. As the corporation makes an extra charge for water supplied through a cistern to water-closets many of these are hand-flushed and in times of scarcity are very inefficiently flushed, so that some of the worst features of a privy closet would be produced. The health visitor was appointed in 1892 and is evidently doing good work. During 1905 she paid nearly 1500 visits to houses from which births had been registered and gave advice on infant hygiene and wherever infantile diarrhœa was known to exist she gave information as to the proper dieting of children. The results indicated above are quite sufficient justification for the appointment of this officer. Voluntary notification of phthisis has not been very successful in Newport. There were 68 deaths from this disease during 1905 and only 21 cases were notified. Now that the corporation has decided to utilise one of the blocks at the isolation hospital for the treatment of consumptive patients the number of notifications will probably be increased.

Hereford Dispensary.

This institution has been established over 70 years and includes a provident as well as a charitable branch. During the year ending at midsummer last there were 412 provident members who subscribed £221. Of this sum £155 were distributed among the medical staff and the remainder was placed to the charity account.

The Handel Cossham Hospital, Kingswood.

The Handel Cossham Hospital, which is being erected at Kingswood, near Bristol, at a cost of £27,000, exclusive of furnishing, is now approaching completion and it is expected that the formal opening will take place early next year. The hospital has an endowment fund of £80,000. The total cost of the undertaking was provided for by the late Mr. Handel Cossham, a former Member of Parliament for Bristol.

The Truro Board of Guardians and its District Medical Officer.

At a meeting of the Truro (Cornwall) board of guardians held on August 30th Dr. James Ratcliff-Gaylard attended and complained of some remarks made at a previous meeting of the guardians, when it was stated that the medical officer had been in the habit of sending to the asylum with undue haste persons who were not insane and ought not to be sent there. In protesting against these remarks he said that it was open to him to bring an action for libel against the board and he produced a letter from the medical superintendent of the asylum stating that persons who were not insane would not be kept there. After some discussion the guardians unanimously passed a vote of confidence in Dr. Ratcliff-Gaylard who in acknowledging it expressed himself as being entirely satisfied.

The Devon County Council and Tinned Meat.

At a meeting of the Devon standing joint committee held on August 29th it was reported that during the preceding three months 40 samples of tinned meat had been submitted for analysis under the Sale of Food and Drugs Act and that "grave fault had been found with some foreign brands, the county analyst having in some cases certified that the contents of the tins were unfit for human consumption." It was suggested that the committee should issue some warning notice but the chairman expressed the opinion that nothing would be more effective than the revelations published in the newspapers, adding that the defects were entirely in foreign manufactured products.

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SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Water-supply in Islay.

THE question of water-supply for the villages of Portnahaven and Port Wemyss in Islay has been for some time engaging the attention of the local authorities. In the month of July Dr. Robert McNeill, the medical officer, and Mr. Campbell, the sanitary inspector of the county of Argyll, submitted a report to the district committee in which they stated that the water in the reservoir for supplying the villages was found to contain more nitrogenous and suspended matter than is desirable in water used for dietetic purposes, that the reservoir was in several places at the sides overgrown with weeds, and that its bottom appeared to be covered with mud. The provision for filtration was so inefficient that the people complained that tadpoles issued from the pipes, some stating that a teacupful of tadpoles could be found sometimes in a pitcherful of water. With the exception of one man the villagers informed the inspector that they never use the water-supply provided by the district committee for dietetic purposes but drew their water from surface wells. In these wells for the most part the supply of water was pure but the quantity was limited, and one well was found almost dry and swarming with water-flies. In connexion with the water-supply from the reservoir there is no grave source of pollution, and it is thought that by proper filtration, cleansing of the reservoir, removal of weeds and mud, protection of the stream from cattle, and also by the frequent scouring of the pipes the water might be rendered fit for household purposes. The matter has been brought under the notice of the Local Government Board and recently the district was visited by Dr. F. Dittmar and Mr. Carter, C.E., and Dr. McNeill, the sanitary adviser of the Local Government Board.

The Dangers of Shell-fish.

Last year, as was noted in THE LANCET, there was a mild epidemic of enteric fever in the summer months traceable to shell-fish gathered and eaten by trippers to the various seaside resorts on the Firth of Clyde and east coast of Scotland. In consequence of this it was suggested by the medical officer of health of Glasgow that the authorities at the various watering places should erect boards bearing notices warning people from gathering mussels in areas where it was considered they could not be obtained uncontaminated by sewage. Notwithstanding this precaution six cases of enteric fever have just been reported in Glasgow apparently arising from this same cause. In three cases the shell-fish were gathered on the west and the remainder on the east coast. In one instance on the west coast no notices warning the public regarding the danger arising therefrom were to be seen, although in another they were read and disregarded. It would appear also that the east coast local authorities have not yet adopted this measure of warning the public, although in one instance it is reported that the situation from which these shell-fish were gathered was grossly contaminated with sewage. It is now suggested that the local authorities should adopt preventive measures by framing by-laws prohibiting the public, under penalty, from gathering shell-fish in other than the descriptive areas laid down by them—i.e., such places remote at least a quarter of a mile from sewers or other contamination, with all due regard to the ebb-flow, eddies, &c.

Retirement of the Surgeon to the Glasgow Police Force.

Dr. John A. Boyd, who for some years has held the post of medical officer to the Glasgow police force, the fire brigade, and lighting department, has tendered his resignation owing to continued ill health and the resignation has been accepted. It has been stated that the medical man who holds this post has to attend in case of illness about 3050 men, and it is suggested that it would be advisable instead of appointing one medical man to appoint several and divide the work into districts, as was done recently in the case of the Post-office appointment in Glasgow. This suggestion has not met with the approval of the watching and lighting committee of the town council in the hands of which the appointment lies. The committee has agreed that applications for the post should be advertised for at a salary of £400 per annum, with an allowance of £10 per annum for bandages, &c. and £50 per annum for travelling expenses.

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were teetotalers and some were interested in temperance reform, but they thought the licence safer in their hands than in those of a private brewer, as they do not push the sale of drink either among visitors at the home or the people of Gilsland. The voting showed 44 in favour of letting the licence lapse and 149 in favour of its retention. This apparent anxiety lest a dangerous power should fall into hands less scrupulous than those of the coöperators seems to be discounted by the statement that there was no real need for the retention of the licence, as those who wanted intoxicants could get them from other licensed houses in the neighbourhood. The conclusion come to makes things easy for those who love compromise, for the coöperators keep control of what is so often a curse and at the same time obtain their special beverages with the least possible inconvenience. So far as the legitimate work of the home is concerned the report appears satisfactory. There were 596 convalescents in the home during the year, the same number as in 1905, while 787 visitors had made use of the home, as against 670 in the previous year. During the month of June all the accommodation was occupied; since Easter it has been well utilised. These convalescent homes in different parts of the country are among the brighter signs of the times. They show that the principle of self-help is extending in some directions.

The Fascination of the Brickcrofts.

To ordinary people the prospect of sleeping in a brickcroft, even with the warmth of the kiln as an additional temptation, is not one that would be looked forward to with pleasure. To some men, however, it does seem to present a fascination not altogether accounted for by necessity. The representative of the firm owning the favourite brickfield at Cheetham told the magistrate's clerk that they could not keep the men away. When turned off they came back in "a larger batch," though they had a yardman and a watchdog. The men carried the hurdles and boards into the drying sheds and created a nuisance there. One man said he was homeless, out of work, short of food, and out of health, but a large proportion might have better quarters if they thought it worth their while to make a little effort. The Bench ordered food to be given to the homeless one and sent him to the Crumpsall workhouse. Some were discharged, but others were sent to prison for periods ranging from seven days to a month. The struggle to prevent the use of the brickfields as a sleeping-place has been going on for a long time and it seems as far from a conclusion as ever. This is not the place to go into the question of the "submerged," but their existence shows a failure in our social system not creditable to the civilisation of to-day. The point of most interest to us as medical men is the part played by them in the spread of disease.

Death of Mr. A. G. Don of Stockport.

The death by motor accident of Mr. Don, who removed from Sevenoaks to Stockport about three years since, adds one more to the roll of those slaughtered by motor-cars. This slaughter has become so frequent as to be commonplace and the docile British public looks on it as belonging to the established order of things. An inquest was held at Sevenoaks, where Mr. Don was staying for a short time, on August 25th. The verdict, of course, was "Accidental death," the driver being exonerated from all blame. But the jury added a rider to the effect that only competent men should be licensed to drive motors on the public highway, the jury considering that the driver had not had sufficient experience. This does not agree logically with the verdict, but it shows what all must see, that with the immense and rapid multiplication in the number of motor-cars there must have been a corresponding increase in the number of drivers, and therefore the more probability of a large proportion of them being incompetent. The cause of the overturning of the car was from sideslip on a muddy road.

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LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Health Committee: the Public Milk-supply.

AT a meeting of the health committee held on August 30th Dr. E. W. Hope (the medical officer of health) reported that the number of deaths during the preceding week was 345, equal to a rate of 24·2 per 1000, as against 19·9 a year ago. He said that the death-rate was a favourable one considering the meteorological conditions, &c., but the continuance of the present hot weather would probably give rise to a further mortality from diarrhœa in infants, unless great care was bestowed upon them by mothers, especially in the matter of feeding. The general hospitals were available to admit such cases, being temporarily subsidised by the corporation; suitable food was also supplied by the same body; but unless mothers themselves were particularly careful in regard to the management of their infants there would certainly be a continuance of the mortality from diarrhœa, which last week accounted for 127 deaths, as against 77 in the corresponding period of last year. Two fresh cases of small-pox were reported during the week, making five now under treatment in hospital. Having regard to the importance of the public milk-supply the health committee has authorised Dr. Hope to attend a conference of medical authorities shortly to be held in London on the question. The conference will be arranged for at a date generally convenient and will probably take place a month hence.

Enteric Fever at Fleetwood Camp.

An outbreak of enteric fever has recently occurred among the officers of the 3rd Battalion of the Loyal North Lancashire Regiment quartered at Fleetwood Camp, nine of whom were attacked by the disease and three unfortunately have died. Special inquiries are being made as to the cause of the outbreak. The *Liverpool Daily Post and Mercury* states that the governing body of the town has no jurisdiction over the camp which is on Crown land. The authorities have assisted Major Pearse, the War Department's specialist, in his investigations. Two facts are established—firstly, that the outbreak is limited to the officers' mess and, secondly, that the cause must be either the food or the water. All the food recently purchased in the town and neighbourhood has been traced as far as possible, but everything is reported as being absolutely above suspicion. The water-supply to the camp is exactly the same as that supplied to the town as well as to Blackpool, Lytham, and St. Anne's, and all the neighbouring places. No sickness exists in the camp and Fleetwood's bill of health is quite clean. The water supplied to the officers came from pipes laid by the War Office, the joints of which were found to be bad and leaky, and it was stored in a certain water-barrel cart which seems to have been in a dirty condition. The water has evidently been contaminated from one or both of these sources.

Lunacy in Lancashire: Asylums Board Scheme.

The Local Government Board has consented to the Lancashire Asylums Board borrowing £29,000 for the purchase of the Whalley estate as a site for a new lunatic asylum. The site committee deemed it wise to refrain from erecting a complete asylum for 2000 patients, but decided to erect a portion, leaving time and opportunity of gaining greater experience before deciding upon a plan for the remainder. Of the 13,000 or 14,000 certified pauper lunatics in Lancashire one-fourth are maintained in the workhouse at a substantially less cost to the ratepayer than in the asylum. A conference with boards of guardians is discussing the possibility of arriving at an arrangement whereby a large proportion of chronic and harmless cases shall be maintained at the cost of the asylums board in workhouses, while acute and dangerous cases in the workhouses could be sent to the asylums. The erection of a reception hospital and administrative block with wards attached for 500 acute curable cases of each sex has been recommended.

Sept. 4th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Public Health of Newport.

THE most satisfactory feature in Dr. Howard Jones's recently issued report on the health of Newport (Mon.) is the decline in the infantile mortality rate during 1905. A very large portion of the town consists of newly-built houses which have presumably been erected in compliance with modern requirements. During the past 18 years over 7000 and Medicine of Montpellier. An annual prize in legal medicine at the Faculty of Medicine is provided for, and a similar prize is provided for in the Faculty of Law. A life annuity of 10,000 francs is left to an aged relative which reverts at her death to the Faculty of Medicine.

Dysentery at Toulon.

An epidemic of dysentery is reported from Toulon in the 111th Infantry Regiment stationed in a barrack a portion of the buildings of which is of great age. Many soldiers have been sent to the infirmary and many others to the naval hospital. Careful sanitary precautions have been taken. The water-supply has been brought in from outside and if necessary the barrack will be evacuated.

Action of X Rays on the Ovary of the Bitch.

M. Bouchard read a paper upon this subject at a meeting of the Academy of Medicine held on August 6th. The experiments in question were made by M. Roulier. Last year three observers showed that x rays in weak doses could bring about atrophy of the ovary in rabbits. M. Roulier repeated these experiments upon both rabbits and bitches and found that x rays had a selective action on the ovaries. In very small animals atrophy could be easily brought about without the production of any loss of hair. In the bitch, however, it is very difficult to obtain, even though the administration of x rays was carried to the extent of bringing about lesions of the skin. It would appear impossible to bring about atrophy of the ovary in woman, since experiments upon the corpse of a woman showed that x rays No. 10 were unable to modify the colour of a radiometric pastille placed over the ovary.

The Condition of the Blood in Insanity.

At the Sixteenth Congress of Medical Alienists and Neurologists held at Lille on August 1st M. M. Dide opened a discussion on the Condition of the Blood in Insanity. He first dealt with its behaviour on issuing from a wound, its colour, its alkalinity, and the determination of the mineral constituents. He said that in epileptics the specific gravity of the blood showed a diminution immediately before the occurrence of a fit but very soon regained its normal degree. The proportion of red corpuscles was above the average in maniacal conditions and in the mild forms of general paralysis. In dementia præcox during the early stages of mental depression there was sometimes well-marked leucocytosis with polynucleosis and sometimes eosinophilia. Leucocytosis was hardly ever found in general paralysis apart from febrile and convulsive attacks, in which short periods of leucocytosis were the rule. In epilepsy there was a leucocytosis of brief duration which probably began immediately after a fit. In melancholia with occasional excitement the periods of excitement were characterised by a slight leucocytosis with a normal or very slightly diminished proportion of polynuclear cells during the periods of depression. The microbes found in the blood of insane persons were the enterococcus, the staphylococcus, the micrococcus tetragenes, and on rare occasions the streptococcus. Although organisms could often be cultivated from the blood none of them could be regarded as specific. In his remarks on the chemical physics of the blood M. Dide touched on the methods of procuring samples, on the colouration of the serum, on the occurrence of bile in the serum, on cholæmia affecting members of a family, on laking or the staining of the serum with hæmoglobin, on opalescence of the serum, on glykæmia, and on increased osmotic tension (*hypertonic*) of the serum. He then proceeded to the consideration of alexins, bacteriolysins cytolysins, specific and non specific neurolysins, isohæmolysins antihæmolysins anticytotoxins, specific and non-specific natural antihæmolysins, bacterial hæmolysins, agglutinins, precipitins, hæmo-agglutinins, bacterio-agglutinins, antibacterio-agglutinins, toxins of parasitic origin, chronic and acute microbial toxins, and meta-infectious neuro-toxin. In conclusion, he discussed hæmatology in relation to heredity and the effects of lesions of organs or structures which were concerned in the defence of the body against toxic agencies, such organs or structures being exemplified by the bone marrow, the lymphatic glands, the liver, and the glands of internal secretion. Among the subsequent speakers who took part in the discussion were M. Sabrazès, M. Taty, M. Sicard Léri, and M. Faure.

Sept. 3rd.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Alexander Herzen.

THE week now closing has been saddened for many Italians by the death of Alexander Herzen at Lausanne, where he had long been enhancing in the chair of physiology the reputation he founded in the same capacity at Florence. Son of the celebrated Russian patriot and man of letters, he was born on June 29th, 1839, and sharing his father's "disabilities" in his native country he made Switzerland the scene of his studies, first literary, then medical, in which latter he distinguished himself at Berne, where he graduated as M.D. in 1862. After a visit, for scientific purposes, to Ireland, he came in 1865 to Florence as assistant to Professor Moriz Schiff, then occupying with great distinction the chair of physiology in the "Istituto di Studi Superiori." He worked assiduously and effectively with his master in those researches in the nervous system and in digestion which at that time gave Florence a European name, and when, on the occasion of Professor Schiff's jubilee, a selection from his works was made *publici juris* in various languages, Herzen was intrusted with the edition in French of his master's great treatise on the "Digestive Process" For 12 years he continued his conjoint labours with the Florentine professor till, under pressure of antivivisectionist agitation, in which the English-speaking colony took an active and far from creditable part. Schiff had to transfer his brilliant and salutary services to Geneva. Herzen then succeeded him in the "Istituto," but in four years had to follow his master to Switzerland, there to act as professor of physiology at Lausanne. From 1881 to the present year he made his chair progressively attractive to students of every nationality, while he will always be gratefully remembered in the canton and in the country as one of the most effective organisers of the new University instituted in 1890. Switzerland had by this time become his native country, in which he represented loyally the views, political and social, which had driven his father into exile—in proof of which may be cited his refusal to accept the restitution of his confiscated estate and fortune offered him by Alexander III. on condition of his renouncing his father's opinions. He was a voluminous but at the same time a weighty and estimable contributor to the literature of his subject, some of his best work having seen the light in Italian, a language in which he wrote and conversed with an idiomatic ease and elegance equally conspicuous in his French and in his German. Of his ten children some were born in Italy, one of them at present holding office under the Italian Government in the Department of Woods and Forests. His death at Lausanne, due to an apoplectic seizure from which he never rallied, became known in Italy on August 28th and evoked poignant regrets in many a circle, scientific, professional, and lay.

National Congress for the Blind.

The annual "Congress" has long been to the profession in Italy what the "post-graduate course" has been in Northern Europe and has quite lately come to be in Italy herself. It was, and is, an opportunity widely and effectively utilised of a professional "comparing of notes" and interchanging of experiences, mostly clinical, which is now systematically afforded in supplement to the medical curriculum at the various schools. The next two months will witness many of these congresses, embracing discussions on the most diverse topics of medical interest, from clinical diagnosis and therapeutics to hydrology and balneary appliances, from public hygiene to the care and (where possible) the cure of the blind. This latter theme will attract to Rome in the late autumn a large assemblage of all interested in the conservation of the visual organs and in the means of aiding those whose eyesight has failed them congenitally or by accident or disease. King Victor Emanuel is expected to honour with his presence this (the Fifth) "Congresso Nazionale per la Prevenzione di Cecità" and the Minister of Public Instruction, who will also preside, has already contributed 1000 fr (£40) towards general expenses. Two committees, one organising and another honorary, are coöperating for the successful issue of the Congress, at which many important papers will be read and discussed by masters, past and present, in the two main sections, that of "Typhlology" and that of the "Prevention of Blindness." While the Congress is sitting

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Longford County Infirmary and its Medical Officer.

AT a recent meeting of the committee of management of the Longford county infirmary a long and elaborate report was read from the Local Government Board with reference to certain charges made by the committee against Mr. N. Mayne who has been surgeon to the infirmary for 30 years. Dr. Hoare, Roman Catholic Bishop of Ardath, presided. The report dealt fully with the subjects of the inquiry held in March last, when the surgeon was charged with disobedience and insubordination, and went also into the charge brought against him on June 26th of having caused an outbreak of diphtheria in the hospital by his admission of a patient suffering from that disease. The report states that apart from the question of the outbreaks of diphtheria the general charges preferred against Mr. Mayne had reference to differences of opinion between him and the committee of management. As regards the admission of a patient without a ticket the matter was exhaustively discussed at the inquiry, and the board considered that when the patient was brought to the infirmary the surgeon could not have done otherwise than admit her, having regard to the urgency of the case and the necessity for immediate operation. As regards the selection of consultants the board considers that the committee having fixed the rate of remuneration would act prudently in leaving the selection of a consultant to the surgeon who is in the best position to judge what special assistance he requires at each operation. Regarding the recent outbreaks of diphtheria in the institution the board referred to the evidence of Dr. J. M. Day, resident medical officer at Cork-street Hospital, in which he stated that if towels were properly disinfected there would be no danger of contagion being conveyed by them. Moreover, if the infection had been conveyed by them symptoms would have appeared before March 27th. The towels had been used by Mr. Mayne in a private case of diphtheria and belonged to the infirmary. The board, however, considered that the practice of the surgeon in taking the infirmary nurse to assist him in his private practice was irregular, and it was also highly irregular that towels or other surgical requisites belonging to the infirmary should be used by Mr. Mayne outside the infirmary, while it was particularly objectionable to have used them in such a disease as diphtheria. But the report on the whole is distinctly in favour of the well-known surgeon to the Longford Infirmary, for it states that it is of opinion that "while there have been irregularities no grave dereliction of duty has been proved."

Typhoid Fever in Belfast.

At a meeting of the city corporation of Belfast held on Sept. 3rd an influential deputation, representing residents in the Malone road district, appeared before the council with reference to an outbreak of typhoid fever in this locality. It was stated by the two spokesmen that 14 cases had been already reported, and that there were others not yet reported, and that relatives of some of the deputation were suffering from the disease. The corporation was urged to take measures for real adequate protection of the milk-supply, especially outside the city. No milk, it was suggested, should be sent from a dairy which had not a proper licence from the corporation. There should be adequate inspection both of the cows and of the people who milked them. The sewerage of the district was also referred to and the presence of open gratings was condemned. The council was urged to take some energetic action in such a very serious matter. In the subsequent discussion (on the report of the public health committee) it was admitted that the health authorities were not able to fix the blame on any particular cause, though there was, it was stated by the chairman of the public health committee, suspicion attaching in some direction. It was pointed out by another speaker that it was deplorable that, in the face of such an epidemic in one of the most prosperous districts of Belfast, there should be no one at the head of the public health department who could be looked to for advice in the matter. The chairman of the public health committee, in reference to the want of proper control of the milk-supply, said the corporation was exercising what powers it had, and he regretted that the Bill which was introduced last session as an amendment to the Public Health Bill had been withdrawn. But why has not the Belfast corporation, in the many Bills which it has introduced, not already grappled with this milk problem? The chairman of the public health committee, in reply to a question at the council meeting, said "he understood that 11 houses where typhoid fever had broken out obtained their milk from the same source." The corporation has been urged again and again to take action as other cities have done, but nothing happens. And the city of Belfast for the past four months has had no medical officer of health. The public health committee, urged on to do its duty by the Local Government Board, has decided by a majority to recommend a salary of £800 a year and a special meeting of the council will consider the whole subject on Sept. 5th.

Tuberculosis in Pork.

For two hours on Sept. 3rd the members of the Belfast corporation discussed the regulations for inspection of pork. The rule formerly in use was to follow the dictum of the 1898 Royal Commission on Tuberculosis and destroy the whole carcass of a pig which on inspection showed any evidence of tuberculosis. To this the Belfast Provision Curers' Association objected on the ground that further experience showed such a rigid rule was not necessary, that it was absurd to treat the pig differently from the cow, and that it was contrary to the practice of Germany and America and to the line adopted in such places as Glasgow, Aberdeen, Birmingham, &c. After a long debate the following resolution was passed by 30 votes to 17:—

> That in all well-nourished carcasses of pigs where the tuberculosis is strictly confined to the glands of the neck, the head only, or such portion as is affected by the disease, shall be destroyed, the remainder of the carcass being handed back to the owner; and that all carcasses showing unmistakable evidence of the disease having become generalised—i.e., two or more organs affected—the whole of every such carcass shall be destroyed, and that all other carcasses showing unmistakable evidence of the disease shall be destroyed.

Previous to the discussion a deputation from the Trades and Labour Council appeared before the council asking them not to modify the old regulations. It is interesting to watch the zeal of some members of the Belfast corporation to abolish tuberculosis by meat inspection while so little is done in other directions, such as sanitation, control of the milk-supply, building of sanatoriums, &c., to face the problem.

Sept. 4th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Toxic Phenomena following the Administration, per os, of Dead Glanders Bacilli.

AT the last meeting of the Society of Biology held on July 28th M. Catacuzene and M. Riegler communicated a paper upon the above subject. They had observed that the intra-stomachal injection of dead glanders bacilli gave rise to grave symptoms in guinea-pigs, whether young or full grown. The symptoms were those of poisoning followed by death at longer or shorter intervals, or by recovery according to the dose of microbes employed. The preparation of bacilli employed was a culture on glycerine agar, emulsionised in alcohol, in which the bacilli died in a few hours. This emulsion was then centrifuged and the dead bacilli were dried in vacuo. When injected into the intestine the dead bacilli gave rise to toxic symptoms varying in gravity with the size of the dose. Not only the soluble portions of the substance but the very bodies of the bacilli themselves passed out through the intestinal walls and could be detected in the lymphatic glands, in the spleen, and in the lungs, in which last organ they produced foci of broncho-pneumonia. Small doses given by the mouth produced a tolerance for the poison provided that three months were allowed to elapse between two doses.

A Medical Man's Will.

Dr. Jaumes, a professor of the Medical Faculty of Bordeaux, has recently died and has made the Faculty of Medicine his legatee. A sum sufficient to produce an annual income of 6000 francs is left for the creation of a chair of general pathology and therapeutics. A sum of 30,000 francs is left to the Association of Medical Men of Hérault and a like sum to the Academy of Sciences, Letters, healthy place until malaria was introduced there in 1877, apparently by Italian workmen engaged on the fresh water canal. Ever since the beginning of the British occupation the town has had a bad reputation for malaria, and before anything was known of the etiology of mosquitoes the fever was thought to be caused in some mysterious way by the meeting of sea water from the Mediterranean, from the Red Sea, and from the fresh Nile water brought by an open canal from Cairo to supply the inhabitants. In 1901 Prince d'Arenberg, the president of the Canal Company, determined to try to stamp out the disease and practically succeeded after two years' exertions. The company is practically master of the situation at Ismailia, and as most of the European inhabitants are in the company's service it was easy to see that medical advice was followed, while full pay and free medicines were granted to the sick. In July, 1901, no anopheles could be found in either the European or native quarter, but at the beginning of August the first were seen, and a few days later the whole town was invaded, the chief varieties being anopheles pharoensis and anopheles chaudoyei. Dr. Pressat was sent to Italy to complete his knowledge of the connexion between malaria and mosquitoes, but it was not until the visit of Major Ross in September, 1902, that the Canal Company, in coöperation with the Egyptian Government, decided to destroy, not only the anopheles, but also the culex and stegomia mosquitoes. Three favourite haunts of anopheles, consisting of small and large swamps, were discovered and had to be drained and filled up at a cost of about £2000. One European and three natives were detailed for applying petroleum once a week to cesspools and to see that water was not allowed to lie in or near the houses. On this day the garden fountains and watering-tanks are obliged to be emptied, and measures are taken to see that all ventilators from cesspools are capped with wire netting to prevent the escape of mosquitoes from the petroleum in the cesspools. The annual cost comes to about £750 As a result of the work mosquito nets have not been necessary in Ismailia since the beginning of 1903, and since that year no case of recent malaria has been known in the town. When any cases of malaria have occurred lately they have invariably been due to relapses in old patients, or the disease has been imported into the town from native villages outside the protected zone. It is now to be hoped that these outlying villages will also be treated by the Egyptian Government, and that the Canal Company will continue its useful labours in Port Said and Suez, in both of which towns there are many mosquitoes and at times much malaria. The statistics for Ismailia show that in the year 1901 there were 1990 cases of malaria treated, whereas in the year 1905 there were only 55 cases under treatment, and everyone of those was a relapse occurring in a chronic patient.

August 28th.

NEW YORK.

(From our own Correspondent.)

Progress of Medicine in the Philippine Islands.

Dr. Victor G. Heiser, surgeon of the United States Marine Hospital Service and Director of Health at Manila, in the Philippine Islands, reports that the past year has been one of great importance in its relation to medical progress in the islands. The most notable event was the passage of an Act by the Philippine Commission establishing a medical school and defining the manner in which it shall be controlled and conducted. It was to be located in Manila and be known as the "Philippine Medical School." The managers are the Secretary of Public Instruction, the Secretary of the Interior, one member of the Commission, and a member designated by the Governor-General. The object of the Commission was to create a class of native physicians, as it is believed that if there was one such qualified practitioner to every 1000 inhabitants the most beneficial results would follow. During the year Saint Paul's Hospital, in Manila, has been established; the Episcopal Church has made the necessary arrangements for establishing a general hospital; the Methodists have opened a dispensary and will soon establish a maternity hospital; the navy has completed a fine modern hospital at Canacao; the army has completed a modern hospital at Fort William McKinley; the Presbyterians have built a large general hospital in Iloilo; and the Government maintains a sanatorium in the mountains of Benguet. In addition to these institutions dispensaries have been established in a large number of places by church organisations or by the Bureau of Health. The report calls attention to researches which Dr. Wilkinson is making on the value of the x rays in the treatment of leprosy; to improvements in the preparation of cholera and plague vaccine; to researches on glanders and its prevention by Dr. Strone; and to researches on tropical light by Major Woodruff, of the United States army.

New Legal Decisions in Divorce Suits.

An application for divorce recently came before the Supreme Court of Massachusetts based on a complaint of "opium drunkenness." It was alleged by the defence that it was not easy to define the word "drunkenness" as applied to the use of opium, morphine, or other drugs. The court held that the evil effects resulting from the continued use of opium or morphine were well known; they interfered as much with the happiness of married life and produced other effects on the marriage relation as deplorable as those resulting from the excessive use of intoxicating liquors; it was the state thus resulting from their excessive use which the legislature intended to describe by the word "drunkenness" as applied to the use of opium, morphine, and other drugs, and from which it was intended to afford relief to the innocent party. In order to warrant a decree the evidence must be such as to justify a finding that the habit was gross and confirmed and existed when the libel was filed.—An application for divorce came before the Court of *Appeals of Kentucky*, based in effect upon the following question: "Can a wife condone the offence of which the husband confessed he was guilty by living with him, after knowledge on her part of the fact that he had a loathsome disease?" The Kentucky statute declares the "cohabitation as man and wife, after a knowledge of the adultery or lewdness complained of, shall take away the right of divorce therefor." The court in this case placed its opinion on the higher and broader ground that the offence charged in this action is one that the wife cannot condone by cohabiting with her husband so as to deny her the right to obtain from him a divorce for this cause. A husband or wife might be willing and anxious to condone a single act, or a series of acts, of gross misconduct, or cruel treatment, or other specific violation of the marriage obligation, but the infliction of a loathsome disease does not come within this rule; it is a continuing offence, not a distinct or separate grievance that may be forgotten or forgiven in a day or week, or a species of misconduct that affectionate treatment and gentle behaviour might obliterate. It was likely that the defendant when he married believed that he was well, but his innocence in this respect did not affect the question presented. There are reason and justice in the doctrine that the injured spouse may, by his or her voluntary acts, committed with a full knowledge of all the facts, condone a vice or crime, but when either one party or the other has contracted a loathsome disease that may be for all time menacing to the health, dangerous to the life, and distressing to the peace of mind and happiness of the parties, these reasons can have no application.

Effects of Sanitation on West Indian Negro Labourers.

Reports on the health of labourers on the Panama Canal reveal the interesting fact that the sanitary measures adopted for the improvement of the health of the employees have not proved advantageous to the West Indian negroes. They have always been accustomed to sleep in close, unventilated apartments for the purpose of avoiding the night air, which they consider dangerous. The new barracks for labourers admit of very free ventilation night and day, and the result has been that these negroes have been exposed to the night air and the mortality from pneumonia has been excessive.

Fees of Physicians for Insurance Examinations.

The rate of pay of physicians for the examination of persons applying for insurance in life insurance companies has always been disgracefully meagre. The profession has been aroused in many States to the injustice of these fees and there is a widespread movement to obtain redress. The Minnesota State Medical Association has adopted resolutions which declare that any examination for life insurance is incomplete without an examination of the urine of the applicant, and the members of the association are recommended to pledge themselves to charge a minimum fee of $5 for each and every ordinary examination, including chemical there will be opened to its members an "Esposizione Campionaria," an exhibition of specimens of work executed by the blind. Professor Alfonso Neuschüler, President of the organising committee, has by this time received the "adhesion" of well-nigh all the blind asylums and institutions for the industry of the blind throughout Italy—the latter having announced as contributions to the "Esposizione" the most varied and elaborate specimens of the handiwork of their inmates.

Sept. 1st.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Coffee Trade in Turkey.

THE medicinal value of pure and fragrant coffee has long been recognised, and the coffee trade in Turkey may be considered of importance to the whole medical profession. Turkey annually receives from other countries 9,350,458 kilogrammes of coffee of a value of 93,333,278 piastres, and exports only 4,853,423 kilogrammes, representing the sum of 43.876,778 piastres. Of late, the trade in coffee has considerably diminished, due to the fact that the coffee plants of the Yemen plantations have been suffering from a mysterious disease which has not yet been fully and properly investigated. In consequence of this disease the grains become foul and soft inside and very black outside. A short time ago several branches with diseased coffee grains were sent to Constantinople for purposes of examination and chemical analysis. The result of this has not yet been made known. Another reason of the diminution in the trade is the practice of mixing with real coffee all sorts of extraneous matter, sometimes quite harmless, very frequently, however, deleterious to health. A rather usual admixture is the powder of dried figs. The practice of adding the latter to pure coffee is in great vogue not only in Turkey but also in Austria, in certain parts of Germany, in Roumania, and in Servia. Fig powder is added to coffee in the proportion of 1 to 3. The beverage prepared of this mixture has a deeper colour and possesses considerable nutritive qualities, but much of the essential quality of the coffee is, of course, lost.

Syphilis and Venereal Diseases in Sivas.

From several parts of this vilayet the spread of syphilis and venereal diseases is reported. The sanitary inspector of the province has asked the central authorities of Constantinople promptly to adopt all the necessary measures in order to check the propagation of the malady and to treat the sufferers. It is intended to build in Sivas itself a hospital with, to begin with, 50 beds for syphilitic and venereal patients. Two medical men will be appointed, with a salary of 1500 piastres per month. Their duty will be to visit all the contaminated localities and to render gratuitous assistance to all seeking such. They will also receive a proportionate sum for travelling expenses and for drugs and instruments. Similar measures have already been adopted in other provinces. As soon as the authorities in Sivas find the necessary funds the mentioned measures will be executed.

The Exportation of Rose Essence.

The Bulgarian newspaper *Courrier de Sofia* gives interesting details with regard to the export of rose essence from the principality of Bulgaria. According to that newspaper the average of 3011 kilogrammes of rose essence has been yearly exported from Bulgaria during the period of ten years from 1886 to the end of 1895. This represented the annual value of 1,639,754 francs or 544·5 francs per kilogramme. From the beginning of 1889 to the end of 1905 the export gradually rose to the average annual amount of 4150 kilogrammes, representing the sum of 2,749,926 francs, or 662·6 francs per kilogramme. The increase in the last ten years has thus been 1139 kilogrammes, or 27·4 per cent. per year. The income resulting from the export has therefore proportionately increased to 1,100,072 francs, or 40·4 per cent. per year. The essence of roses is exported into almost every country which has commercial relations with Bulgaria. The markets of England, Austria, Germany, Italy, Russia, Turkey, France, and the United States of America are the most stable. The most is exported to the last-named States. Next comes France with 28·8 per cent. Next England with 16·8 per cent. In 1905 the total exportation amounted to 5316 kilogrammes, of the value of 3,712,386 francs.

August 31st.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Plague Instructions.

THE management of outbreaks of plague has been a routine part of the duties of medical officers for the past seven years, and it has now been thought advisable to issue in a small handbook a description of the various methods which have been found to work well in practice. The Director-General of the Public Health Department begins by reminding all officers that the same care must be exercised in disinfection and the general management of isolated cases as in dealing with distinct outbreaks. It is this individual care so far exercised in Egypt which has chiefly contributed to the success of anti-plague measures. Directly a living case of plague is discovered a police guard should be placed on the house, and the disinfector and the head man of the quarter must be sent for. The probable source of infection should be ascertained and a list made of all contacts, which includes the inhabitants of the house and the nearest relatives. The patient must be removed to the infectious hospital or to a special building or temporary hut which can be utilised as one. The contacts must be examined every day for ten days and disinfected. If a disinfecting station exists in the town, all clothes and soft goods must be removed there; if not, the clothes must be disinfected with the premises. As soon as possible after the patient's arrival at the hospital some serum should be withdrawn from his bubo (or lung in the case of pneumonic plague) with all aseptic precautions; the drop or two of serum ejected on to agar must be sent to Cairo or Alexandria without delay. When the patient is already dead the specimen for bacteriological examination must be procured in the place where the body is lying, corrosive sublimate, 1 in 1000, is given for washing the corpse, and the shroud must be soaked in the same solution; the bier should be lined with zinc or tin and disinfected after use. It is very seldom found necessary to destroy infected clothes, but they should be soaked in sublimate solution for 20 minutes and afterwards thoroughly dried in the sunlight. In all cases of pneumonic plague the contacts must be kept strictly isolated for ten days. It has been found that when concealment of cases is practised in the village a secret gratuity of one dollar for each report of a fresh case of plague has an excellent effect. In the case of a foreign subject neither disinfection nor removal to hospital can take place without previous consultation with the Consul concerned. When the disinfection of a house is finished all rat holes must be thoroughly opened up, a small quantity of carbolic solution, 1 in 10, poured into them, some broken glass placed so as to plug the bottom of the rat run and held in position by mortar, and the hole mortared up flush with the wall. All dead rats and mice found by the workmen are put into a special paraffin tin and covered with carbolic acid. Rat poisoning is best carried out with phosphorus paste concealed in tomatoes. I may here mention that phosphorus and arsenic are the poisons, together with traps, found most useful in Japan. The number of rats killed in Tokyo since 1900 averages more than 800,000 a year, and it is calculated that these dead rats, laid side by side, would extend for a distance of over 75 miles. Yet according to Kitasato, "we can hardly notice any considerable decrease in the number of these animals in Tokyo." Mosques in Egypt must be treated with respect by the disinfecting gangs, but the manager of the mosque is given sublimate solution so that the mosque servants may carry out disinfection. The most convenient form of hospital hut for rapid building is found to be ten metres long by six metres wide, divided by a partition for the two sexes.

Suppression of Malaria at Ismailia.

Under this title the Suez Canal Company has now published a pamphlet in French with maps and illustrations of mosquitoes, detailing the work done by their medical officers on the recommendation of Major Ronald Ross. The town of Ismailia, founded by Lesseps in 1862 on the borders of Lake Timsah, which is now part of the Suez Canal, is inhabited by some 8000 people. It was considered a very the patient, and that the privilege would be illusory if it were confined to his statement. The court thought that the plaintiff's construction of the section was correct and that the commission must be refused. Cost of the summons would be costs in the cause, as a different construction of the section had prevailed since its introduction. Speaking for himself as to the effect of the decision of the court, one of the judges said the point successfully raised gave new and dangerous effect to the section as an obstruction to the administration of justice. No such obstruction existed in England or, as far as he could ascertain, in any other State of Australia. Since the year 1857 medical evidence had been given without consent of the patient and without objection in innumerable cases in the courts—evidence most important in cases of testamentary or other mental incapacity, in the divorce court as to physical conditions proving infidelity, and in cases such as the one before the court, in which its exclusion might leave fraudulent misrepresentation unexposed. No such evidence could be given in the future without the consent of the patient, which in some cases would not, and in other cases could not, be given. For these reasons it seemed to him that repeal or amendment of the section was urgently called for in the interests of justice.

Secret Medical Preparations.

Under the provisions of the Pure Food Act of Victoria the Board of Health has adopted the following regulations :—

> No compounded drug of which the average dose is more than one teaspoonful (60 minims) for adults, or is more than one-half of one teaspoonful for children under five years of age, unless such compounded drug is a preparation set out in the British Pharmacopœia, or is sold specifically as an alcoholic compound, shall contain more than 10 per centum by volume of ethyl alcohol.
>
> No drug or compounded drug other than any sold specifically as one of, or as containing one or more of the substances set out herein, or *any of their derivations*, shall contain opium, or belladonna, stramonium, nux vomica, cannabis indica, cocaine, heroin, or any derivation of any of these drugs, or chloral hydrate, bromides, sulphonal, trional, veronal, paraldehyde, or any other synthetic hypnotic substance, or phenazonum, phenacetinum, or acetanilidum, or any other allied substance.

Under the Commerce Act of the Commonwealth also the Minister of Customs proposes to include under the regulations the following :—

> In cases where any such article contains not less than 10 per cent. of ethyl alcohol and the average dose recommended for use shall be greater than one teaspoonful (60 minims), or when any such article contains any of the following ingredients :—Morphine, cocaine, heroin, or the salts or derivatives of the same, or any of them, or of chloral hydrate, belladonna, cotton root ergot, or other abortifacient, the description shall contain an intimation to that effect.

Friendly Societies' Dispensaries.

The Prahram United Friendly Societies' Dispensary and Medical Institute has been the defendant in a series of actions recently. The Pharmacy Board of Victoria laid an information that the dispensary not being registered pharmaceutical chemists carried on business as chemists and druggists. The dispensary had established a restricted form of membership whereby members of the public were permitted on payment of a fee of 6*d*. per annum to become "purchasing members" without any other right or privilege except to purchase medicines at the dispensary. The case was first tried by a bench of magistrates who dismissed it. An order to review was granted by a supreme court judge, and the dispensary appealed to the High Court which has now decided against it. The Chief Justice said that if the society were merely dealing with its members in the manner authorised by the Friendly Societies Act it could not be held to be carrying on the business of chemists within the prohibition of the Medical Act, as the two Acts had to be read together. The court was, however, of opinion that the institute was going beyond the mere dealing with its members and was really selling medicines to any of the public who chose to come and pay the necessary 6*d*. and be enrolled.

Hospital Affairs.

A deputation recently waited on the Chief Secretary of New South Wales to ask that legislation should be introduced to prevent other institutions collecting on the same day as the Hospital Saturday Fund and to provide for the proper distribution of all street collections. The Chief Secretary agreed with the deputation and promised to submit a proposal to the Cabinet.—At the last meeting of the directors of the Royal Prince Alfred Hospital, Sydney, a scheme was approved for the allocation of the 469 beds in the hospital when the new wards are opened. The two new pavilions are [illegible]clusively for surgical cases and one 32 bed ward is to be held in reserve to provide for cleaning of other wards and emergencies.—St. Margaret's Hospital for Women, Sydney, has just opened a district nursing branch to provide poor patients with skilled nursing in their own homes and to teach the poor the elements of sanitation in the home. St. Margaret's is a purely private enterprise, founded in 1894 by Mrs. Abbott. It began with two beds, while last year the number of cases attended to was 398 and the number of nurses trained was 26; 23 surgical operations were performed and 33 medical cases were treated in the patients' own homes; 106 surgical operations were performed and 39 medical cases were treated in the hospital; and over 1200 patients consulted the honorary medical staff for diseases of women. Since it began it has paid no salaries to anyone. Neither Mrs. Abbott, who acts as matron, nor any of the nurses receive any remuneration. The chief source of revenue is the fees paid by nurses for training.

Death of Dr. Long.

The death is announced of Dr. Mark Henry Long, late of Marrickville, near Sydney. He was educated at New York and the London Hospital, and obtained the M.D. degree of the University of the City of New York and the Licence of the Royal College of Physicians of Ireland. He came to New South Wales in 1884. Dr. Long was a well known numismatist and author of "A Skeleton Catalogue of Australian Copper Tokens."

August 3rd.

Obituary.

FRANKLIN HEWITT OLIVER, L.R.C.P. LOND., L.S.A.

Mr. Franklin Hewitt Oliver, late of Kingsland-road, Shoreditch, died on August 22nd at Springfields, Clapton, in the north-east of London, after an illness lasting for over two years. He was the third son of Alderman J. Oliver, M.R.C.P., J.P., of Maidstone, and was born in 1859. He received his medical training at Charing Cross Hospital where he had a successful career as a student, and in 1883 he took the diploma of L.S.A. In 1887 he was admitted a Licentiate of the Royal College of Physicians of London and succeeded to the practice of the late Dr. Burchell of Kingsland-road. His practice soon became one of the most extensive in the district and included many public appointments. For many years he held the position of chief district surgeon to the Royal Maternity Charity and at the time of his death was also surgeon accoucheur to the City of London Lying-in Hospital, surgeon to the G and H divisions of the Metropolitan Police, and surgeon to the Almshouses of the Honourable Company of Ironmongers, as well as being on the board of the Charity Trustees. He was also honorary medical officer and chairman to the Hoxton and Haggerston branch of the Queen Victoria Jubilee Nursing Association, and the work he did in this connexion will remain as a monument of his untiring energy and enthusiasm. Mrs. Oliver, who survives her husband, is a daughter of the Rev. William Cuff, pastor of the Shoreditch Tabernacle, and is left with two children. The funeral took place on August 25th at Abney Park Cemetery when on every side there was evidence of the genuine respect in which the deceased gentleman was held.

THOMAS PONSFORD CANN, M.D. DURH.

A SAD instance of the risks incidental to medical practice is supplied by the death of Dr. T. P. Cann of Newhaven. On August 15th he and his assistant performed an operation for the removal of a patient's tonsils, after which Dr. Cann remarked that he had pricked one of the fingers of his left hand while using the guillotine. This unfortunate accident set up streptococcal infection which proved fatal on August 27th. At an inquest which was held on the following day at the urban council's office in Meeching-road the jury returned a verdict of death from blood-poisoning the result of a wound on the finger caused while deceased was performing an operation on a patient. Dr. Cann was born in 1875 at Newhaven, being the eldest son of Mr. Thomas Martyn Cann, who was for many years in medical practice there until his death last June. Dr. Cann studied medicine at the University of Durham and in analysis of the urine, and a minimum fee of $10 for each and every examination where a microscopic examination of urine, sputum, or other secretion is required.

A Proposed National Public Health Society.

The Medical Society of the County of New York announces a convention for the purpose of organising a national society the object of which shall be to enforce laws against the irregular practice of medicine and the adulteration of foods. The recent exposures of the beef trust, the indiscriminate sale of alcohol and narcotics and dangerous poisons under the name of patent medicines, and the alarming conditions made known by the Pure Food Bill have led a great many philanthropists and religious associations to issue a call for a conference to be held in New York on Nov. 15th, to discuss ways and means of organising a society to obtain and disseminate accurate information concerning practices and conditions dangerous to the public health and morals, and to prevent quackery, criminal practices in the healing art, adulteration of drugs, and the sale of narcotics and alcohol under the guise of proprietary medicines.

Preventive Work among School Children.

A remarkable effort, aimed at the very root of crime, is being made by the Philadelphia Society to Protect Children from Cruelty. Alienists, physicians, and specialists in various diseases have been invited to aid in the work. Every child taken care of by the society must have filled out for him by his parents in consultation with the examining physician a blank in which space is given for the identification and description of many ills. These blanks were prepared by the leading physicians of Philadelphia, Dr. Weir Mitchell being of the number. The physical examination relates to the family history, bodily measurements, expression of the eyes, memory, voice, speech, general appearance, and the condition and history of every part of the body. The mental diagnosis is made on the answers to questions of family and physical history and condition of every part of the body. Thus prepared with a trustworthy chart of the physical and mental tendencies of the child, the society is prepared to apply intelligently the proper remedial and reformatory measures.

August 26th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Difficulties of Water-supply for Large Cities

THE city of Rangoon must now be added to the list of towns in India troubled about their water-supply. The great Hlawga scheme, which has cost Rs. 46 lakhs will only supply adequately a population of 207,000, while Rangoon has now about 300,000 and the population is increasing rapidly. It is estimated that it will cost another Rs 25 lakhs to increase the supply sufficiently for a population of 340,000. It is stated that provision has so far been made for the rate of only 25 gallons per head daily instead of 40 gallons as required. These troubles in Rangoon have their counterpart in Calcutta and Bombay. In the premier city—the capital of India—it is also proposed by the new scheme to provide a supply of 40,000,000 gallons daily. At present about 27,000,000 are pumped into the city daily but by having more powerful engines greater pressure can be put on and the existing mains will probably be able to convey 32,000,000 gallons. This extra supply means more filters besides pumping plant and will cost nearly Rs. 20 lakhs. I have already advised you of the great scheme for a large overhead reservoir to be erected at the north of the city, which will supply water by gravitation instead of by pumping, as at present, at the four distributing stations in the city itself. It seems, however, that the larger supply of water there is to the city the greater proportionate amount of waste goes on, and the cry is continually heard for more. The waste is enormous and is hardly realised by the authorities. Fortunately for Calcutta, the quality of the water is excellent. The filtered water is only used for domestic purposes, there being a separate supply of unfiltered river water for watering the roads and for flushing purposes. Part of the city has had installed a constant system but the larger part is still subject to intermittency.

The Calcutta Crematorium.

The Calcutta Crematorium, after extended trials, has been recently declared fit for use and the first cremation took place a few days ago. The furnace is the patent of Toisul, Fudet, and Co. of Paris, and is worked by gas. The pressure to supply the gas at the rate of 3000 cubic feet per hour if necessary is obtained by a mechanical blower, but it is found that from 6000 to 8000 cubic feet are sufficient for a cremation, and a large part of this amount is consumed in heating up the furnace preparatory to the cremation. I hear that the charges laid down by the corporation are very moderate. There is a growing opinion in favour of cremation in India, and the reduction of the enormous charges at present ruling in connexion with burial will materially promote its more general adoption. This crematorium is the only one worked by gas east of Suez, the other installations at Shanghai employing coke. The gas furnace is perhaps more expensive, but it is certainly cleaner and is devoid of the appearance of a foundry. Although the corporation of Calcutta has liberally provided this crematorium, the credit for its establishment belongs to the Cremation Society of Bengal, which was formed for the purpose and is very influentially supported.

The Plague Mortality.

The plague mortality throughout India, which attained a minimum record for the last week in July, has since increased and the increase has been general in all the districts affected. The figures are small—the total for the week ending August 4th amounting to 738 deaths—but the signs are ominous. The increase in Burmah is especially marked, and Rangoon is probably doomed to another outbreak. Nothing has been announced concerning the researches of the Plague Commission and the old *laissez faire* policy of administration still continues. The only place where a separate plague department seems to be maintained is at Calcutta and the excellence of its work is said to be the chief reason for not placing the administration in other hands.

The High Death-rate in Bombay.

It is a curious thing that while plague is now comparatively quiescent the mortality in Bombay city should be so high, while that of Calcutta is unusually low. The deaths in Bombay may be said to be unaccounted for, because under the heading of "all other causes" the mortality is nearly double the average. A death-rate of from 50 to 60 per 1000 in the absence of an epidemic to explain it requires a searching investigation. It would appear that the first thing Bombay has to do is to find out from what the people are dying. The weekly returns absolutely fail to explain the high mortality.

August 17th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Professional Secrecy.

THE Full Court of Victoria recently gave an important decision as to the interpretation of the law respecting medical evidence. An insurance company was sued for the amount of a policy. The company's defence was that the policy had been secured by misrepresentation, the deceased having stated that he had never had any serious illness, whereas it was asserted that a medical man (not the examiner of the company) had found that he was suffering from pulmonary tuberculosis. The company applied to have this practitioner's evidence taken on commission. The plaintiff objected on the ground that the medical practitioner would be prohibited from giving evidence by a clause in Section 55 of the Evidence Act, 1890, which ran :—

> No physician or surgeon shall, without the consent of his patient, divulge in any civil action or proceeding (unless the sanity of his patient be the matter in dispute) any information which he may have acquired in attending the patient, and which was necessary to enable him to prescribe or act for the patient.

In answer to this objection it had been contended that the prohibition was confined to communications made to the medical adviser by the patient and that he might disclose in evidence any information which he had acquired by his own observation. This contention was supported by the association of this clause with another clause in the same section protecting confessions made to a priest. For plaintiff it was contended that the word "information" was wide enough to cover knowledge howsoever acquired, whether from medical examination or from statements by

F. A. Davis Company, 1914–16, Cherry-street, Philadelphia, U.S.A.

The Ear and its Diseases. A Text-book for Students and Physicians. By Seth Scott Bishop, B.S., M.D., LL.D., Author of "*Diseases of the Nose, Throat, and Ear, and their Accessory Cavities*," Honorary President of the Faculty and Professor of Diseases of the Nose, Throat, and Ear in the Illinois Medical College. Price $4.00 net.

A Primer of Psychology and Mental Disease. For Use in Training Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. Burr, M.D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases. Third edition, thoroughly revised. Price $1.25 net.

J. B. Lippincott Company, Philadelphia and London.

Hand Atlas of Human Anatomy. By Werner Spalteholz, Extraordinary Professor of Anatomy in the University at Leipzig. Edited and translated from the Fourth German Edition by Lewellys F. Barker, Professor of the Principles and Practice of Medicine, Johns Hopkins University, Baltimore, formerly Professor of Anatomy in the University of Chicago and Rush Medical College. With a Preface by Franklin P. Mall, Professor of Anatomy in the Johns Hopkins University at Baltimore. Second edition in English. Price £2 2*s.* net per set of three volumes.

The Eye and Nervous System, their Diagnostic Relations. By Various Authors. Edited by Wm. Campbell Posey, A.B., M.D., Professor of Ophthalmology in the Philadelphia Polyclinic, and William G. Spiller, M.D., Professor of Neuropathology and Associate Professor of Neurology in the University of Pennsylvania. Price 25*s.* net.

Jullien, J., Geneva; and Georg et Cie, Geneva.

La Médecine à Genève jusqu'à la Fin du Dix-huitième Siècle. Par le Dr. Léon Gautier. Price not stated.

Kimpton, Henry, 13, Furnival-street, Holborn, London, E.C., and 40 and 42, University-avenue, Glasgow.

Kimpton's Public Health Series. Food and Digestion in Health and Disease during Infant, Child and Adult Life. With an Introduction on the Nature of Matter and the Phenomena of Life and an Account of the Source, Properties and Influence of Water. By M. A. Dutch, M.D., Diplomate in Public Health and Sanitary Science, University of Cambridge, Fellow of the Royal Institute of Public Health, London, &c. Price 2*s.* 6*d.* net.

Laurie, T. Werner, Clifford's Inn, London.

The Cathedrals of England and Wales. By T. Francis Bumpus. Third Series. Price 6*s.* net.

Lewis, H. K., 136, Gower-street, London, W.C.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. Lond., D.P.H., H.M.'s Coroner for North-East London. Twelfth edition. Price 10*s.* net.

Little, James, Melbourne.

Diseases of the Urethra. By P. Clennell Fenwick, M.B. Lond., F.R.C.S. Ed., M.R.C.S. Eng., L.R.C.P. Lond., Fellow of the Royal Geographical Society, late Surgeon to the Wanganui Hospital, New Zealand, late Surgeon to the Christchurch Hospital, New Zealand, Surgeon-Captain Second New Zealand Contingent, South Africa. Price not stated.

MacDougall, Alex., 65, Mitchell-street, Glasgow.

Transactions of the Medico-Chirurgical Society of Glasgow. Volume V. Sessions 1903–1904, 1904–1905. Edited by Hugh M'Laren, M.B., C.M., Editorial Secretary to the Society. Price not stated.

Safar, Josef, Wien.

Die Infektionskrankheiten rücksichtlich ihrer Verbreitung, Verhütung und Bekämpfung. Kurzgefasstes Lehrbuch für Militärärzte, Sanitätsbeamte und Studierende der Medizin. Von Oberstabsarzt Dr. Ludwig Kamen, weil. ständ. Mitglied des k.u.k. Militär-Sanitäts-Komitees und Lehrer an der militärärztlichen Applikationsschule in Wien. Militärärztliche Publikationen Nr. 100. Lieferung 5–7. Price K.4.80 or M.4.

Stanford, Edward, 12, 13, and 14, Long Acre, London, W.C.

British Rainfall, 1905. On the Distribution of Rain in Space and Time over the British Isles during the Year 1905. By Hugh Robert Mill. Forty-fifth Annual Volume. Price 10*s.*

Wright, John, and Co., Bristol. (Simpkin, Marshall, Hamilton, Kent, and Co., Limited, London.)

Indications for Operation in Disease of the Internal Organs. By Prof. Hermann Schlesinger, M.D., Extraordinary Professor of Medicine in the University of Vienna. Authorised English Translation by Keith W. Monsarrat, M.B., F.R.C.S. Ed., Surgeon to the Northern Hospital, Liverpool. Price 5*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Cox, L. J. H., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

Cunningham, A. B., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

Dickson, A. N., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

Dunkley, [illegible], M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed House Physician to Out Patients at St. Thomas's Hospital.

Gamlen, R. L., M.R.C.S., L.R.C.P., has been appointed House Surgeon to Out Patients at St. Thomas's Hospital.

Gerrard, Laurence, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer of the No. 9 District of the Lincoln Union.

Harper, Frances Margaret, M.B., Ch.B. Edin., D.P.H. Camb., has been appointed Lady Assistant Medical Officer to the County Borough of St. Helens, Lancashire.

Hewett, F. S., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

Hooker, A. W., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Junior Casualty Officer at St. Thomas's Hospital.

Howarth, W. G., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

Howitt, A. B., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

Jordan, Alfred C., M.D. Cantab., has been appointed Medical Officer to the Electrical Department of the North Eastern Hospital for Children, Hackney-road.

MacDonald, S. G., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed House Surgeon to Out Patients at St. Thomas's Hospital.

Nicholls, Frank J., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the London County Council Training College, Avery-hill, Eltham.

Norbury, L. E. C., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Senior Casualty Officer at St. Thomas's Hospital.

Page, C. M., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed House Surgeon to Out Patients at St. Thomas's Hospital.

Philpot, H. A., M.R.C.S., L.R.C.P., has been appointed House Physician to Out Patients at St. Thomas's Hospital.

Sankey, W. O., M.R.C.S., L.R.C.P., has been appointed House Physician to Out Patients at St. Thomas's Hospital.

Sington, H. S., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

Squires, H. C., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

Stocker, Edward Gayer, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed temporary Medical Officer and Public Vaccinator for the Clevedon District, Somerset, by the Long Ashton Board of Guardians.

Taylor, Clifford J., F.R.C.S. Edin., has been appointed House Surgeon to the Herefordshire General Hospital.

White, George F., M.D. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Stanford-le-Hope District of the county of Essex.

Whitehouse, H. B., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed House Surgeon to Out Patients at St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Ancoats Hospital, Manchester.—Resident House Physician. Salary £80 per annum, with board, residence, &c.

Birmingham Asylum, Rubery-hill.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, &c.

Birmingham and Midland Eye Hospital.—Senior House Surgeon. Salary £80 per annum.

Brighton, Sussex County Hospital.—Second House Surgeon, unmarried. Salary £60 per annum, with board, residence, and washing. Also House Surgeon, unmarried. Salary £100 per annum, with board and residence.

Camberwell House Asylum.—Second Medical Assistant Officer, unmarried. Salary £150, rising to £200, with board, apartments, and laundry.

Cambridge, Addenbrooke's Hospital.—Assistant House Surgeon. Salary at rate of £50 per annum, with board, residence, and laundry.

Cancer Hospital, Fulham-road, London, S.W.—Senior House Surgeon. Salary £80 per annum.

Cape of Good Hope, Grey Hospital, King William's Town.—Resident House Surgeon, unmarried. Salary at rate of £300 per annum, with quarters and one ration.

Cardiff Union Workhouse.—Assistant Medical Officer, unmarried. Salary £130 per annum, with rations, apartments, attendance, and washing.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—House Surgeon for six months. Honorarium of £25, with board, residence, &c.

Eccles and Patricroft Hospital.—House Surgeon, unmarried. Salary £70 per year, with board, residence, and washing.

Egyptian Government, Ministry of Education.—Professor of Midwifery and Gynæcology. Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el Ainy Hospital. Salary £400 a year.

Glasgow, Royal Hospital for Sick Children.—Resident House Physician and Resident House Surgeon, both for six months. Salaries at rate of £50 per annum, with board and laundry. Also Assistant at Dispensary (non-resident) for six months. Salary at rate of £100 per annum.

Great Northern Central Hospital, Holloway.—Pathologist and Curator. Salary £100 per annum. Also Senior House Physician, Senior House Surgeon, Junior House Physician, and two Junior House Surgeons. All for six months. Salaries of senior officers at rate of £50 per annum and of junior officers at rate of £30 per annum, with board, lodging, and washing.

Hastings, St. Leonards, and East Sussex Hospital.—House Surgeon, unmarried. Salary £75 per annum, with residence, board and washing.

Huddersfield Infirmary.—Junior House Surgeon. Salary £50 per annum, with board, residence and washing.

Hull, Victoria Children's Hospital, Park-street.—House Surgeon. Salary £80 per annum, with board and laundry. Also Assistant House Surgeon. Salary £[illegible], with board and laundry. Both females.

Newcastle-on-Tyne, graduating as M.B. and B.S. in 1899. In 1901 he took the degree of M.D. and joined his father in practice at Newhaven. In 1902 he married the eldest daughter of Mr. Henry M. Langdale, a well-known surgeon practising in Uckfield. The deceased was medical officer of health of the Newhaven urban and port sanitary authority. He also held a variety of local appointments, including that of Admiralty surgeon and agent. The funeral took place on August 30th at Bishopstone churchyard and was very largely attended. A carrying party furnished by the detachment of the Royal Army Medical Corps stationed at Newhaven took the body into the church and afterwards conveyed it to the final resting-place.

RICHARD DAVID EVANS, M.R.C.S. ENG., L.R.C.P. LOND.

Mr. R. D. Evans of Llandilo, Carmarthenshire, died at his residence there on August 5th, after a few days' illness, at the early age of 42 years. He received his medical education at St. Mary's and Guy's Hospitals and took the qualifications of the English Conjoint Board in 1894. He had been in practice in Llandilo for some years and was not long ago appointed medical officer of the urban district of Llandilo in succession to the late Mr. W. H. Lloyd. He was also surgeon to the 1st Volunteer Battalion of the Welsh Regiment. Mr. Evans was an able, conscientious, and painstaking practitioner, who enjoyed the confidence of a large circle of patients and friends. He has left a widow and family.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Nina Rodrigues, professor of forensic medicine in the University of Bahia.—Dr. Philipp Dospranikoff, professor of anatomy in the Military Medical Academy, St. Petersburg.—Dr. Felix Rymowicz, professor of ophthalmology in the University of Warsaw.—Dr. Guyot, senator for the Rhone.—Dr. Salvatore Tomaselli, professor of clinical medicine in the Catania School of Medicine.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* Dr. Loeb has been recognised as *privat-docent* of Pharmacology.—*Budapesth:* Dr. Wilhelm Leitner has been recognised as *privat-docent* of Ophthalmology.—*Florence:* Dr. Lorenz Borri of Modena has been appointed Extraordinary Professor of Forensic Medicine.—*Göttingen:* Dr. Lochte of Hamburg has been appointed Extraordinary Professor of Forensic Medicine. The title of Professor has been granted to Dr. Franz Schieck, *privat-docent* of Ophthalmology.—*Gratz:* The title of Extraordinary Professor has been granted to Dr. Wilhelm Scholz, *privat-docent* of Internal Medicine, and to Dr. Fritz Hartmann, *privat-docent* of Mental Diseases. Dr. Hermann Pfeiffer has been recognised as *privat-docent* of Forensic Medicine.—*Strasburg:* Dr. Franz R. Wollenberg of Tubingen has been appointed to the chair of Mental Diseases in succession to the late Dr. Fürstner.—*Vienna:* Dr. Karl Hochsinger has been recognised as *privat-docent* of Children's Diseases.—*Yale:* Dr. George Blumer has been appointed to the chair of Medicine in succession to the late Dr. Ely.

WEST AFRICAN MEDICAL STAFF.—The following appointments have been made to the West African Medical Staff:—A. N. de Gruchy, M.B., Ch.B. Edin., Southern Nigeria; H. E. Arbuckle, M.B., Ch.B. Edin., D.P.H., Sierra Leone; E. J. Tynan, F.R.C.S. Irel., D.P.H., Southern Nigeria; J. Cross, M.B., Ch.B. Glasg., Southern Nigeria; H. T. Palmer, M.R.C.S. Eng., L.R.C.P. Lond., Gold Coast; W. M. Wade, M.B., Ch.B. Dub., Gold Coast; and A. B. Tighe, M.B., Ch.B., B.A.O. Dub., Gold Coast. The following promotions are announced:—A. H. Hanley, C.M.G., F.R.C.S. Irel., deputy principal medical officer in Southern Nigeria, to be principal medical officer in Sierra Leone, vice W. T. Prout, C.M.G., retired. F. G. Hopkins, M.B., B.Ch. Lond., senior medical officer in Southern Nigeria, to be deputy principal medical officer, vice A. H. Hanley, C.M.G. R. J. D'Arcy Irvine, M.B., M.S., senior medical officer, Gold Coast, retires on pension. G. J. Rutherford, M.R.C.S. Eng., L.R.C.P. Lond., senior medical officer, Southern Nigeria, is transferred to the Gold Coast, *vice* R. J. D'Arcy Irvine.

DISEASED MEAT AT BRISTOL.—The chief inspector of the health department of the Bristol corporation reports that during 1905 the quantity of meat destroyed as unfit for food exceeded 32 tons.

VACCINATION GRANT.—Dr. Alec Forsyth, of Chacewater, Devon, has been awarded for the second consecutive time the Local Government Board grant for successful vaccination.

NEW WORKHOUSE INFIRMARY FOR PLYMOUTH.—At a meeting of the Plymouth board of guardians held on August 21st a tender of £31,637 was accepted for the erection of a new workhouse infirmary.

CONVALESCENT HOME FOR NEWPORT.—Lord Tredegar has given property valued at £12,000 near Newport (Mon.) for the erection of a convalescent home, which will be also fitted up at his expense.

MANCHESTER EPILEPTIC COLONY.—A new epileptic colony for Manchester was formally opened on Sept. 3rd by the Earl of Derby, Lord Lieutenant of the county. The site of the colony is at Langho and the buildings will provide accommodation for over 270 patients, together with the necessary offices and staff. The buildings are divided into separate blocks, each planned to contain 40 beds. Altogether the buildings at present erected number 16, including the house of the medical superintendent, an administration block, a reception and hospital block, the central kitchen and stores block, a general laundry, and workshops for various trades. The ceremony was attended by the Lord Mayor of Manchester and a large number of municipal authorities of the county and district. The visitors assembled in the hospital ward and then walked in procession to the front entrance of the administrative block, where Lord Derby was given a gold key with which to unlock the door. The Rev. J. A. Rushton read prayers in conclusion of the ceremony, and luncheon was afterwards served in the Assembly Hall under the presidency of Dr. J. M. Rhodes, the chairman of the Chorlton and Manchester joint asylum committee.

GRIMSBY TOWN COUNCIL AND THE MEDICAL OFFICER OF HEALTH.—On August 29th a special meeting of the town council of Grimsby was held to consider the question of the appointment of a medical officer of health in succession to the late Dr. T. Newby. The meeting was presided over by the mayor. A long argument ensued as to the desirability of making a temporary appointment or not, and the feeling of the meeting in general evidently was that, in place of the present system in which the medical officer of health had been allowed to take private practice and under which various medical men performed various public duties it, would be better to have a medical officer for all public work in the borough, who should give up the whole of his time to his official duties. Sir George Doughty, M.P., however, apparently took exception to this view. Finally it was decided to advertise for a medical officer at a salary of £500 per annum who would undertake all corporation work except that of the education committee. The mayor remarked that he thought £500 was too small a salary, but it does not appear from the report that any increase was voted.

BOOKS, ETC., RECEIVED.

BRYCE, DAVID, AND SON, Glasgow.

A System of Surgical Nursing, with an Appendix containing Useful Formulæ, Emergency Drill, &c. By A. N. M'Gregor, M.D., F.F.P.S.G., Assistant Surgeon to the Glasgow Royal Infirmary. Price 9s. net.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, and Melbourne.

The Other Side of the Lantern. An Account of a Commonplace Tour Round the World. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D., Sergeant-Surgeon to H.M. the King, Surgeon-in-Ordinary to H.R.H. the Prince of Wales, Author of "The Tale of a Field Hospital." Popular edition. Price 6s. net.

CUNDALL, J. W., 8 and 9, Essex-street, Strand, London, W.C., and GREENING AND Co., Limited, 20, Cecil court, Charing Cross-road, London, W.C.

London. A Guide for the Visitor, Sportsman, and Naturalist. By J. W. Cundall, Author of "America Atn (Re-written and enlarged.) Price 6d.

e could dismiss the case, allow him to withdraw it, or grant an djournment in order that further medical evidence could be given.

Mr. Baggallay said that in his opinion the society commenced hese proceedings too quickly. The child had already undergone our operations and the mother was not satisfied that another was eally necessary. The mother was entitled to know from a specialist hat a fifth operation was essential. In the circumstances the ummons would be dismissed.

Mr. Jenkins: If you want any further medical evidence it shall e produced.—Mr. Baggallay: I have heard the whole of the evidence ou chose to produce and the case is dismissed. I am not the rosecutor.

Mr. Sydney: I do not know what you will say in regard to costs. My client is a poor woman and she has been brought here at considerable expense, which she cannot afford. Mr. Baggallay: If I allow costs it will be rather assuming that I think the mother is entirely right. I do not, but I think the society is wrong in taking these proceedings so hurriedly.

A QUESTION OF LEGAL PROCEDURE.

n interesting question has arisen at Hinckley. It seems that the relieving officer gave an order for medical attendance to a man in the town, the order being addressed to Dr. A. W. Jenkins, the medical officer appointed by the urban district council. Upon examining his patient Dr. Jenkins found it would be necessary to amputate one of the man's legs, and ordered his removal to the Cottage Hospital, to which the Hinckley guardians subscribe annually. Upon this coming to the notice of the medical officer of the workhouse he contended that as the guardians would have to pay for the amputation the patient should have been brought to the workhouse infirmary, where he would have performed the operation. Both medical men put their views before the guardians, but in the meantime Dr. Jenkins amputated the limb at the hospital. We are glad that we are not asked to express an opinion upon the matter; it bristles with legal points.

A QUESTION IN PHARMACY.

To the Editors of THE LANCET.

SIRS,—In Whitla's "Pharmacy, Materia Medica, and Therapeutics" of an old date, 1892, he says under Chrysarobin (p. 363), "Brooke's Salve Sticks are a splendid way to use chrysarobin." I have tried to get these through my druggists in London and have not succeeded. Can you help me in this matter?

I am, Sirs, yours faithfully,
FRANK HOWARD,
Sept. 2nd, 1906. Colonel, Army Medical Staff (R.P.)

*** We do not know the particular preparation referred to by Sir William Whitla, but the Pharmacopœia of St. Mary's Hospital, London, contains the following which is probably very similar: "'Baculum chrysarobini:' chrysarobin, 3; wax, 2; lanolin, 5."—ED. L.

MEDICAL MAN AND SPIRITUALIST.

IT is not often that spiritualistic phenomena are in evidence at a coroner's inquest but such a case occurred the other day in Manchester during an inquiry concerning the death of an infant. It died from "accidental suffocation following convulsions." A juror asked Mr. W. J. Heslop, who had examined the body, if he found any impression near the mouth as if it had been covered by an arm or anything like that, to which the reply was that there was no impression at all. The juror claimed to be a spiritualist and clairvoyant, and said he could see a mark on the chin. Mr. Heslop said he was afraid that was not evidence, but the juror persisted, saying: "You may laugh, but it is so. I can see a mark on the chin." A verdict of "Death from natural causes" was returned.

FLOWERS FOR TOWN-DWELLERS.

IT has been recognised in all our hospitals that the keeping of the wards bright with flowers and foliage is particularly grateful to patients. "The spleen is seldom felt where Flora reigns," said the poet, and it seems as though the unrolling of the frond or the development of the bud awakens in the sick thoughts of hope, life, and health. But there is no reason why the beneficial influences of Flora should be restricted for town-dwellers to the time of sickness, although this is practically the only time when they get the solace of leaves and flowers. The majority of us may be compelled to live in the smoke-laden air of a large town, made the more disagreeable nowadays by the fumes of petrol, and the number of persons now driven into towns, as the only centres of employment, is getting larger daily, but the amount of vegetation that will thrive in towns is hardly appreciated. In a recent article in the *Times* a writer advocated the cultivation in garden, forecourts, residential dwelling rooms, and in the dreary, and ofttimes grimy, surroundings of offices and other places of business, of some of our native hardy ferns, which he believed would readily adapt themselves to conditions under which flowering plants would sicken and die. There is no doubt that much might be done in this way to beautify some of the dreary homes and streets of our towns, and the question is a practical one because there are fortunately many other plants besides ferns which could be used for this purpose. This was admirably demonstrated by the Country in Town Exhibition held at Whitechapel in July last and briefly commented upon in our columns (*vide* THE LANCET, July 14th, p. 135). We cannot change our busy commercial centres into garden cities but we can do a great deal towards beautifying them and making them more healthy by calling to our aid plants and flowers. For some years the larger thoroughfares in London have been planted with trees—indeed, it is surprising how difficult it is to get out of sight of a tree in London—and here and there plants may be found in window-boxes or in tubs at the doors of business premises. But if a few more exhibitions such as that at Whitechapel were held the mind of the public would awaken to possibilities undreamed of in the past except by the few. Meanwhile, let us welcome every suggestion for the making of London beautiful and healthy. By the way, we may add that we do not advocate the denuding of lovely country spots of ferns and flowers that they may be sold in the towns, there to die of unsuitable attempts at culture. There are common and hardy plants enough and to spare, and anything like defilements of the country side is odious.

THE HUMOURS OF COUNTRY PRACTICE.

To the Editors of THE LANCET.

SIRS,—In a recent issue of THE LANCET you gave several amusing instances of the various humorous occurrences, both written and spoken, of country practice and I venture to send you a few copied *literatim* from my collection. I regret that it is impossible to reproduce the original writing, but it is of about equal merit with the spelling. The first one is from an old gentleman who evidently believed in President Roosevelt's spelling reform.

> "Pleas send me another botle of medson and sstivicate for another fortnit for the club."

An alternative spelling of certificate is as follows:—

> "Sir—Will you be so kinde as to send my son's cifictat and oblig."

A representative note describing a patient's condition is as follows:—

> "Mr. —— is a litl betr o as ad a betr nit."

The diagnosis in the following is excellent:—

> "Sir Pleas send me a bottel of medisen for the influne and New Ralge by post."

A genteel note to tell of a fortunate occurrence from the patient's point of view reads:—

> "Sir—J. T. R—— has ad a sattisfactrey moshon."

Erysipelas proves a great stumbling block, as the two spellings here given show conclusively:—

> "Plese will you send me sum medsen I think I have gott Hair Sipless I got a lot of spot hon my fase."

> "Dear Sir Sorry to say that my face is not any better and I am afraid it is turning to Harrysiplice."

This description of a hysterical attack, if not as comprehensive as that in the textbooks, is very graphic:—

> "Docker If you pleas betsy Ann she as som verry bad pains in her legs and thay swell and her stomak is so bad we pain in a moring that she scars can walk and all most fants a way then she borst out crine and she so low spert and pleas will you grant her a medual certifiate Mr. —— sent to me for won from henery S."

The delicacy underlying the bracketed information in this letter is delightful:—

> "I have not been well of late so much pain across my loins, shoulders left side & very much on left on top of body I am (3 mths Fragrant) & a lot of bearing down pains."

This is a happy effort:—

> "Sir please my husband mends slowey of is exmas."

The writer of this letter is still alive:—

> "From Mrs ——
> "To the docker I ham sorry to say my Left side is so bad it is like sumthing pulling and narling and tearing from my shoulder blade down to my waste so giddey up my neck to the crown of my head I carsley can gide my self a bout dow you think docker if I had sumthing to rub it with outside it wood dow me any good my ribs hurts me so yours truly."

The last I will give is a letter from a lady asking for a school certificate as the children "had the girmen miseals and will you please send me a cerstificate."

I inclose my card and remain, Sirs, yours faithfully,
Sept. 1st, 1906. RUSTICUS.

THE USE OF GOAT LYMPH IN BRIGHT'S DISEASE.

To the Editors of THE LANCET.

SIRS,—I should be grateful if any of your readers could give some information on the above subject. My own knowledge exceedingly meagre and anything in the way of criticism will be acceptable. So far I am prejudiced against its use, both on the intolerable thirst produced and the occurrence of muscular ability. Before going further into the subject I should be gl know the opinion of others on the use of the lymph in the question.

I am, Sirs, yours faithfully,
August 29th, 1906. A GENERAL PRACTIT

LEICESTER INFIRMARY.—House Physician and Assistant House Physician. Salaries at rate of £100 and £50 respectively, with board, lodging, and washing.

LEICESTER, PARISH OF.—Resident Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

LIVERPOOL INFIRMARY FOR CHILDREN.—Assistant House Surgeon for six months. *Salary £30, with board and lodging.*

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Resident Pathologist and Registrar. Salary £100, with board and residence.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £80 per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—*Junior House* Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, UNIVERSITY OF.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician and Assistant House *Surgeon, all for six months. Salaries of two former at rate of £40* a year and of two latter at rate of £20 a year. Also Casualty Officer. Salary at *rate of £150 per annum.*

NEWHAVEN URBAN AND PORT SANITARY AUTHORITIES.—Medical Officer of Health. Salary *£75 per annum.*

NORTHAMPTON GENERAL HOSPITAL.—Assistant House Surgeon. Salary £50 a year, with apartments, board, washing, and attendance.

PENDLEBURY, MANCHESTER CHILDREN'S HOSPITAL.—Assistant Medical Officer. Salary £100 per annum.

READING, ROYAL BERKSHIRE HOSPITAL.—House Surgeon. Salary £80 *per annum, with board, lodging, and washing. Also* Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 a year, with board and residence.

SHEFFIELD ROYAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £50 per annum, with board and lodging.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with apartments, rations, and allowances.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £150 inclusive.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, with board and lodging.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three *House* Surgeons for six months. Board, lodging, and laundry provided.

Births, Marriages, and Deaths.

BIRTHS.

ARCHDALL.—On August 25th, at 42, Ashburnham-road, Bedford, the wife of Mervyn T. Archdall, L.R.C.P., L.R.C.S., *of a daughter.*

ARMSON.—On August 18th, at The Moat, Yoxall, Burton-on-Trent, the wife of Frank G. Armson, M.R.C.S., L.R.C.P., of a son.

BOWER.—*On August 28th, at* Viewfield, Stretton, near Warrington, the *wife of H. E. Bower, M.D.,* of a daughter.

BUTTERWORTH.—On August 29th, at The Crescent, Wisbech, the wife of Rupert Butterworth, B.A., M.B., B.C. Cantab., of a daughter.

GORDON-GREEN.—On September 1st, at Westerton, 46, Beach-road, Southsea, the wife of Staff-Surgeon H. W. Gordon-Green, R.N., *of a* son.

WINDSOR.—On August 31st, the wife of Charles William Windsor, M.D., of a son.

MARRIAGES.

ANNAND—*RANNIE.—At Marlborough-place* Church, N.W., on the 29th August, William *Fraser* Annand, M.D., son of R. C. Annand, of Harton *Lea, South Shields, to Jessie,* daughter of the Rev. J. Rannie, late of Berbice, British Guiana. At home, 9, Lichfield-road, Stafford, after *October 15th.*

COLLIER—SUMMERHAYES.—On Sept. 1st, at All Souls, Langham-place, James *Stansfield Collier, M.D., F.R.C.P., second son of Alfred* Henry Collier, Esq., of Cranford, Middlesex, to Minna Maud, only daughter of William Summerhayes, M.D., of Loyterton, Beckenham.

GAYNER—EDWARDS.—*On* August 28th, at the Friends' Meeting House, Isleworth, John *Stansfield Gayner, M.R.C.S., L.R.C.P. Lond.,* to Alice Maud, daughter of the late Edwin Edwards.

LATHAM—LARSEN.—On *August 23rd,* at the Cathedral, Trondhjem, Norway, Arthur C. Latham, M.D. Oxon., *to* Ella Augusta Petrea Larsen, daughter of the late Herr Peter Larsen.

LONGSTAFF—*DONALD.—On August 29th,* at All *Saints,* Bolton, Mealsgate, George Blundell Longstaff, M.D., to Mary Jane, daughter of the late Matthewman *Hodgson* Donald.

DEATHS.

SIMPSON.—*On August 28th, at Diyatalawa,* Ceylon (Naval Camp), of enteric, Herbert Bartlett Simpson, M.R.C.S., L.R.C.P., Surgeon, R.N., *H.M.S. Sealark, dearly* loved eldest son of George Bartlett and Ellen Simpson, of 2, Chepstow Mansions, W., in his 29th year. *(By cable.)*

WHITAKER.—On August 29th, at White *Lodge, Shrewsbury, Edmund* Thomas Whitaker, M.B., B.Sc., D.P.H., Barrister-at-Law, M.O.H. for the county of Montgomery and *other districts,* elder son of the late Dr. Edmund Whitaker, J.P., Bacup, Lancashire.

WHITE.—On Sunday, August 26th, at Victoria Hospital, Folkestone, *Richard Dormer* White, M.A., M.D. Univ. Dub., Deputy Inspector-General of Hospitals and Fleets, Royal Navy, aged 61. Interred at Brompton Cemetery August 30th.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE PREVENTION OF CRUELTY TO CHILDREN ARISING OUT OF NEGLECT OF MEDICAL ADVICE.

AT *Tower Bridge police-court on August 31st Caroline Russell, of* 7, Wickham-place, Tabard-street, Borough, was summoned before *Mr. Baggallay by the National Society* for the *Prevention of Cruelty* to Children for neglecting her son Robert, aged eight years. Mr. *Huntley Jenkins appeared for the* society and Mr. Sydney defended. Mr. Jenkins said the *case* was not an ordinary one of neglect and *it raised* a somewhat unusual point. Shortly put, the case was that there was medical evidence to show that an operation upon the boy was absolutely necessary and the defendant in opposition, if not defiance, declined *to* have it *performed.* The *secretary* had *no* vindictive feeling and there was no neglect in the ordinary sense, the defendant being a *fond* and careful mother. She was a *married woman* but *her husband* was a soldier abroad. The child first came under the notice of the society last December. He was then a cripple and the defendant stated that the *child* had been *operated on* three or four times at Guy's Hospital and that since that time she had taken him to a Mr. Burgess. The *boy was kept under observation,* and on August 10th the defendant consented to the child being examined by *a medical man on behalf of the society. The examination was made* by Mr. E. MacDonald Judge, and on August 13th the society's officer, Mr. *Lodge,* read *to* the defendant the medical man's certificate, which stated that the boy was suffering from necrosis of the *left thigh bone* and *in his* opinion surgical interference was absolutely necessary *to save the* limb and possibly the child's life. The defendant still refused to have the operation *performed* and declared her intention of continuing *to use the ointment which she* received from Mr. Burgess, and which she considered was making *the* child better. Mr. Burgess was not a medical practitioner, but there was no complaint against him.

Mr. Lodge, in answer to Mr. Sydney, said that in December the *child could only* walk with the aid of crutches.

Mr. Sydney: *Let* the boy walk across the court.

The boy did so without any artificial aid.

Mr. Baggallay: Are you sure this is the same child?

The Witness: Yes.

You have no doubt about it?—No.

Mr. Judge said that the child had necrosis of the thigh bone in the *lower quarter. He recognised* that the child had been well cared for by the mother who had built up his general condition by intelligent treatment. The *boy* should be under the care of a surgeon and an operation should be performed.

Mr. Sydney: Are you aware that this child has already undergone *four operations?*—Yes.

Do you say operations are *effective in this disease?*—Yes; but sometimes a dozen operations are necessary.

Would not four operations upon a little *child* like this in 12 months be a fair trial?—No.

Did you attempt to ascertain the properties *of* the *ointment* that the woman was applying?—No; ointment is useless in such a case.

Can you say that the application of this ointment was not beneficial?—A corn plaster put on a boot will not cure a corn. The ointment *is* perfectly useless; *it only goes on the skin.*

Last Christmas the child was a cripple. Can you suggest how the child is now able to walk so well unless *it be through the application* of the ointment?—The mother by intelligent treatment has brought about a general improvement *in* his health, but the *disease* of the bone still remains.

In reply to the magistrate the witness said he *did not probe* the leg because he promised the mother not to hurt the boy. He could not positively say that the *disease* was tuberculous, but there was necrosis. *He* would not advise an operation until he had probed. What he meant by "surgical interference" in his certificate was that the child should be placed under the care of an experienced surgeon who would watch him *for a few* days and then operate.

Mr. Baggallay said that before the society had taken proceedings *of this sort* it should have called a specialist in. There was also the fact that the summons was issued *only* seven days after the medical man gave his certificate.

Mr. Jenkins: Because the *woman* flatly refused to take the child to the hospital.

Mr. Baggallay: You want to punish *her because she won't obey?*—Mr. Jenkins: We do not want *her punished.*

Mr. Baggallay: Then what is the *meaning of these proceedings?*—Mr. Jenkins: The *only way we could get* the *custody of the* child to have the *operation performed* was by taking these *proceedings.* We only want a *technical conviction.*

Mr. *Baggallay: I do not* know what a technical *conviction means.*—Mr. Jenkins: Being *bound* over or a shilling fine.

Mr. Baggallay: The *conviction* of the mother for all time of having been guilty of neglecting *her* child!

Mr. Jenkins said the *proceedings* were only taken in the interests of the child. If the magistrate was n

SATURDAY (15th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (10th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

TUESDAY (11th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. C. O. Hawthorne: Clinique. (Medical.)

WEDNESDAY (12th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. J. Clarke: Clinique. (Surgical.)

THURSDAY (13th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

FRIDAY (14th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Diseases of the Throat, Nose, and Ear. Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. L. Paton: Clinique. (Eye.)

SATURDAY (15th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1906, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1906 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 23rd, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 31	[illegible]	E.	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Hazy
Sept. 1	[illegible]	E.	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fine
" 2	[illegible]	E.	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fine
" 3	[illegible]	S.	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fine
" 4	30·11	N.	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fine
" 5	[illegible]	N.E.	0·03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Overcast
" 6	[illegible]	S.W.	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cloudy

During the week marked copies of the following newspapers have been received: *The Times, The Irish Times, Macclesfield Courier, Newcastle Chronicle, Daily News, Scientific American, Literary Digest, Rotherham Advertiser, Western Mail (Cardiff), Birkenhead News, Chelsea Observer, Wakefield Express, &c.*

PRINCIPALS, LOCUM TENENTS, AND MEDICAL AGENTS.

To the Editors of THE LANCET.

SIRS,—During the last 30 years I have acted, in order of time, as locum tenent for about three years, have been a principal for nearly 23 years, am now acting again as locum tenent, and in a few weeks intend to enter on another practice on my own account, so my experience has been varied and extensive. I have engaged gentlemen to act for me as locum tenents and have acted as such myself. First of all, with reference to medical agents and their fees, my opinion both from the principal and locum tenent's point of view is this, that the fairest and most satisfactory offices to deal with are those which charge a uniform fee of half a guinea to each side. The principal who is willing to pay his share of the fee as a rule secures a more trustworthy representative in his absence, while, on the other hand, the agents who do not charge the principal usually take care to exact a larger fee from the locum tenent, especially when the engagement extends to a month or over that period. This system, needless to say, tends to drive many good locum tenents away, only to seek engagements through those offices where the principal pays half the office fee. Writing now as one who has been, and is about to become, a principal again, I may be allowed to say that a trustworthy locum tenent soon knows his worth and how his services have been appreciated and sought after by those he has acted for, consequently he resents having to pay a larger fee than half a guinea (10*s.* 6*d.*) for any engagement, especially when tips to servants in each house and other and not inconsiderable extras, such as the expense of living in hotels in town in the interval between engagements, are taken into consideration.

I am, Sirs, yours faithfully,

Sept. 3rd, 1906. RETROSPECT.

GOVERNMENT STAMPS ON PATENT MEDICINES.

A PARLIAMENTARY return prepared by the Treasury officials shows that in the year ended March 31st, 1906, the gross receipts derived from the issue of stamps for patent or proprietary medicines amounted to £325,103 13*s.* The numbers of stamps issued, varying in rate according to the price of the medicines, were: at 1½*d.* each, 31,322,832; at 3*d.* each, 7,222,432; at 6*d.* each, 1,154,092; at 1*s.* each, 134,357; at 2*s.* each, 14,808; at 3*s.* each, 12,625; total, 39,861,146. In the year 1901–02 the total number of stamps issued was only 37,753,999, and the gross revenue therefrom only £306,456 17*s.* 2*d.*

HOMES FOR EPILEPTICS.

To the Editors of THE LANCET.

SIRS,—Could any of your readers inform me of a home or institution where a woman, aged about 40 years, who suffers from epilepsy would be received at a small weekly charge?

I am, Sirs, yours faithfully,

EUSTACE J. DE GRUYTHER.

621, Seven Sisters-road, South Tottenham, Sept. 4th, 1906.

FIRST AID IN THE POLICE FORCE.

IN committing for trial a prisoner recently charged with maliciously wounding a policeman by stabbing him Mr. Mead commented thus upon the conduct of another constable who had rendered first aid to the injured man: "I must compliment Police-constable Rodgers on the way in which he rendered first aid. The efficient way in which it is rendered by the police is often brought to my notice. It shows how well the police are instructed in the exercise of this aid and how much the public benefit by it." Everyone will be glad that those who instruct the police should be thus congratulated and that the force should be able to make practical use of the instruction imparted, which, must have the effect of awakening their intelligence in many ways. For instance, it no doubt assists them in the appreciation of those cases in which illness is likely to be mistaken for the effects of drunkenness. If there have been instances recently of such mistakes, fewer have been reported in the newspapers, and it is to be hoped that this dangerous error is of less frequent occurrence than it was some years ago. Police-constable Rodgers was able to render effective assistance to a comrade, whose serious condition may be inferred from the fact that he collapsed almost immediately after receiving his wound and from the evidence of a medical witness who deposed that he would be incapacitated for at least a month.

A NEW BED STUFFING.

WE have received from Mr. Thomas Heard of Albert House, Regent-street, Cheltenham, a sample of bedding material which at first sight appears to be cotton wool. On close examination, however, it is found to be of a much finer texture and is quite silky to the touch. Under the microscope the material is seen to consist of small capillary tubes. It is claimed that this material, which we suspect is a vegetable flock akin to thistle down, is very resistant to mildew and to damp and therefore presents very decided advantages as a mattress stuffing compared with many other materials in use. From our examination of the material we can well believe it, and should think that it would make a very excellent bed stuffing. It is soft and silky and yielding. We are disposed to wonder whether any large demand for it could be supplied. We have already referred in our columns to the utter disregard paid to the sanitary condition of material intended for stuffing mattresses, filthy rags being sometimes used for the purpose which have undergone absolutely no cleansing process. If the material of which a specimen has been sent to us by Mr. Heard can be supplied in unlimited quantities and at a moderate price it should have a big future, for it satisfies the requirements of a sanitary and comfortable bed stuffing.

◆

Anonym.—The openings do not appear to us to be very numerous. Application should be made to the Pharmaceutical Society (17, Bloomsbury-square, London, W.C.) and the Society of Apothecaries of London (Water-lane, Blackfriars, E.C.) for information as to the course for the qualifying examinations. The Students' Number of THE LANCET contains the names of certain private schools of instruction.

An Old Shikari.—Our correspondent is thanked for his communication. With regard to his offer we do not think that there will be any benefit in making it public. Extirpation of the spleen is not a particularly difficult operation and no conclusions with regard to the effect of removal of the spleen bringing about immunity from malarial infection or otherwise could be drawn from one case.

ERRATA.—In the list of the medical and surgical staff of Guy's Hospital which appeared in THE LANCET of Sept. 1st, p. 566, the name of Mr. R. C. Lucas should have been added to the list of consulting surgeons. From the list of anæsthetists the name of Dr. D. Forsyth should have been omitted and in the list of medical registrars and tutors the name Mr. H. C. C. Mann should read Dr. H. C. C. Mann.—The Royal Institute of Public Health should have been included in the list of places giving instruction in public health at p. 615 as being a place approved for practical laboratory instruction for the diploma in public health.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (12th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (13th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.

A Presidential Address

ON

TEN YEARS OF LUNACY TREATMENT IN LEWISHAM INFIRMARY.

Delivered to the Members of the West Kent Medico-Chirurgical Society on May 4th, 1906, at the Miller Hospital, Greenwich, S.E.,

BY F. S. TOOGOOD, M.D. LOND.,
BARRISTER-AT-LAW; MEDICAL SUPERINTENDENT OF LEWISHAM INFIRMARY.

GENTLEMEN,—The question of lunacy and its early treatment has of late occupied so prominent a position in both professional and lay journals that an excuse is scarcely needed for publishing a record which I believe to be unique.

A short history of the origin of the method adopted in Lewisham on my recommendation will help to elucidate a somewhat complex procedure. Until 1894 there had been no separate infirmary in this district. The sick were treated in wards in the workhouse, the nursing was mainly effected by old pauper women under some trained supervision, and the medical officer had also the charge of a large Poor-law district as well as a large private practice. A room in a small cottage capable of holding two beds sufficed for the female lunatics, whilst a dark shed containing four beds accommodated the males. A padded room, damp, with a leaky roof and of a very antique pattern, served for the temporary restraint of both sexes. What happened when a male and a female needed restraint simultaneously I do not know. The institution weighbridge, over which every vehicle entering the workhouse necessarily passed, was situated immediately behind the padded room and its rattle, together with the noise—vehicular, equine, and human—attendant upon its use could scarcely have exerted a soothing influence upon the excited occupant. The lunacy procedure in vogue at that time appears to have consisted in the transfer of the alleged lunatic to an asylum as soon as the necessary certification had been effected. Apparently only those cases were admitted to the workhouse which were too violent to be treated even temporarily at home or where the domestic circumstances demanded immediate removal. Cases falling into the hands of the police as wandering lunatics have always been handed over to the Poor-law authorities at once. The removal of a patient recovering from delirium tremens to the county asylum resulted in a series of grave charges against the management. A Local Government Board inquiry exonerated the officers concerned, but it was generally felt that some change of method was desirable and on my appointment as medical superintendent of the new infirmary in 1894 I found the way clear for the adoption of a plan which I had already instituted in St. George-in-the-East. The system is, briefly, the detention of all cases of alleged lunacy concerning whom the aid of the Poor-law authorities has been invoked for a period not exceeding 17 days in the infirmary. At first I had to make shift with two small wards in the infirmary, allowing four beds for males and seven for females. There was no padded room and yet in the five years which elapsed before the building of the present mental block in only 28 cases was it necessary to use mechanical restraint, which has never exceeded the temporary employment of a long-sleeved jacket whereby the arms are confined to the sides. The movement was heartily supported by the bench of magistrates and notably by Mr. Brownlow Poulter, Mr. William Brown, and more recently by Dr. Ralph Gooding, the Deputy Lieutenant of the county. In 1899 the present mental block was opened. It affords accommodation for 11 male and 11 female cases, with a padded room for each sex.

The provisions of the Act of 1890 are somewhat confused reading, but in practice the working is very simple. The attention of the relieving officer having been called to a case of mental disturbance, he adopts a course of action varying with the financial and mental condition of the patient. If he be technically a pauper (a term which is inclusive and elastic) and he be obviously off his mental balance the relieving officer deals with him under Section 20 and removes him to the infirmary where he is received, relieved, and detained for three days. A non-pauper, if the case be urgent, can be dealt with under this section. Within these three days the relieving officer has to give notice to a justice having jurisdiction in the place (Section 14, Subsection 2) who, upon receiving such notice, shall by order require the relieving officer giving the notice to bring the alleged lunatic before him at such time and place within three days from the time of the notice to the justice as shall be appointed by the order (Section 14, Subsection 3). This is effected by the justice visiting at the infirmary. It will be noticed that although the alleged lunatic can only be detained in the infirmary for three days upon the relieving officer's order, yet this officer has three days in which to give notice to the justice, who in turn can defer the examination for another three days, so if a relieving officer gave his notice to the justice at the end of the time allowed by the Act and if the justice were equally dilatory the patient could claim his discharge two days before the date fixed for his examination. Under Section 16 the justice must call in a medical practitioner and must himself examine the alleged lunatic, and if upon such examination he is satisfied that the alleged lunatic is a lunatic and a proper person to be detained, and if the medical practitioner who has been called in signs a medical certificate with regard to the lunatic, the justice may (permissive, not compulsory) by order direct the lunatic to be received and detained in the institution for lunatics named in the order. Now under Section 19, Subsection 1, a justice making an order for the reception of a lunatic otherwise than upon petition may suspend the execution of the order for such period not exceeding 14 days as he thinks fit, and in the meantime may give such directions for the proper care and control of the lunatic as he considers proper, and it is under this subsection that we detain the majority of our cases. The police have equal powers with the relieving officers but as a matter of practice they only exercise them in the case of lunatics, paupers or otherwise, wandering at large, who although separately dealt with under Section 15 yet are subject to an exactly similar procedure. The case of the non-pauper is dealt with under Section 13, which enacts that every constable, relieving officer, and overseer of a parish who has knowledge that any person within the district or parish who is not a pauper and not wandering at large is deemed to be a lunatic and is not under proper care and control, or is cruelly treated or neglected by any relative or other person having the care or charge of him, shall within three days after obtaining such knowledge give information thereof upon oath to a justice, being a judicial authority under this Act. Under Subsection 2 the justice *may* visit the alleged lunatic but he must direct and authorise two medical practitioners to visit and certify. The justice then proceeds in the same manner and has the same powers as if a petition for a reception order had been presented, and under Section 21, Subsections 1, 2, and 3, the justice in these non-pauper cases may now make an order for taking the lunatic to, and receiving him in, the infirmary for a period not exceeding 14 days. Put tersely, a pauper is taken to the infirmary on the judgment of the relieving officer; he must be seen by a justice and by a medical man and when a reception order to an asylum has been signed for him he may be detained in the infirmary for 14 days. A non-pauper has a statement concerning him made upon oath; he must be seen by two medical men at separate times and if their certificates warrant it the justice may commit him to the infirmary for 14 days. The whole procedure is hedged about by restrictions and safeguards; there is nowadays no danger of sane persons being confined in asylums, but rather that persons who ought to have their liberty restricted are allowed to have full scope to ruin themselves and their families.

Having by a somewhat complicated process succeeded in getting our patient committed to our custody let us analyse the different forms of his insanity and the prospects of his cure. During the ten years from 1896 to 1905, 2033 cases of alleged lunacy have been admitted; of these 1020 were discharged either cured or sufficiently recovered for their friends to look after them, 804 were sent to asylums, and 209 died.

Communications, Letters, &c., have been received from—

A.—Dr. B. Anningson, Cambridge; Addenbrooke's Hospital, Cambridge, Secretary of; Major A. R. S Anderson, I.M.S., Port Blair, Andamans; Dr. T Addis, Selkirk; Ancoats Hospital, Manchester; A T; Aberdeen Art Gallery Committee, Chairman of; Dr. N. H. Alcock, Lond.; Mr. W. H. Allen, Smethwick.

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C.—Mr. H. A. Cookson, Halifax; College of Physicians of Philadelphia, Library Committee of the; Mr. R. S. Chant, Lond; Messrs. E. Cook and Co., Lond.; Messrs. Carnrick and Co., Lond.; Messrs. T. Christy and Co., Lond.; H.B.M. Consul-General, Antwerp; Surgeon-Captain Napier Close, Chard; Mr. F. W. Clarke, Chorlton-cum-Hardy; Messrs. T. Cook and Son, Lond.

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M.—Dr. Hugh Robert Mill, Lond.; Medical Society of Victoria, Melbourne, Hon. Treasurer of; Colonel K. McLeod, I.M.S. (retired), Westend; Macclesfield Infirmary, Secretary of; Mr. R. M. Mallock, Henley-in-Arden; Mr. J. Rutherford Morison, Newcastle-on-Tyne; Captain R. McCarrison, I.M.S., Gilgit; Manchester Children's Hospital, Pendlebury; Dr. F. W. Mott, Lond.

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T.—Dr. Charles Bell Taylor, Nottingham; Dr. H. Campbell Thomson, Lond.; Mr. T. Pridgin Teale, Headingley; T. W. B.

U.—Under-Secretary of St
the Colonies, Lond.

V.—Victoria Hospital fo
Children, Hull, Secretary

W.—Dr. William Wright, Gl
Weir Hall, Edmonton, M
of.

Y—Mr. Eric B. Young, Hart

Letters, each with enclosure, are also acknowledged from—

A.—Apollinaris Co., Lond.; Dr. A.; A. V. D.; A. B.

B.—Dr. F. T. Bond, Gloucester; Dr. J. T. Bailey, Paignton; Dr. A R. Berrie, Hetton-le-Hole; Dr. J. M. Barbour, Ramsey; Mr. E. Birchall, Birmingham; Dr. T. W. Beazeley, Little Bromwich; Messrs. Berryman and Sons, Lond.; Messrs. J. Beal and Son, Brighton.

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D.—Messrs. Down Bros., Lond.; Doctor, Greenwich; Mr. R. Davis, Lond.; Mr. W. T. Davies, Penybont; Messrs. A. De St. Dalmas and Co., Leicester.

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G.—Dr. A. Gillespie, Ulceby; Dr. W. P. Gowland, Isleworth; Mr. W. Gibbon, Carmarthen; Messrs. Gordon and Gotch, Lond.; Mr. H. H. Gunnell, Peterchurch; Dr W. S. Griffith, Milford Haven; Staff-Surgeon H. W. Gordon Green, Southsea; Mr. S. G. Gordon, Newry.

H.—Dr. A. G. Heron, Dromara; Messrs. Hooper and Co., Lond.; Messrs. J. Haddon and Co., Lond.; Hull Advertising Agency, Manager of; H. H. W.; H. J.; Mr. W. H. Hooton, Frinton-on-Sea.

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K.—Kurnool (India), District Medical Officer of.

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Liverpool.

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castle-upon-Tyne Hospital fo
Children, Secretary of; N. M. A.

P.—Dr. W. Pasteur, Lond.; Messr
Parke, Davis, and Co., Lond.;
Preston Royal Infirmary, Secretary of; P. V. T.; Mr. C. W.
Purves, Dorchester, Oxon.

R.—Dr. H. Renney, Sunderland; Mr. A. Rayner, Slough; Messrs. Reitmeyer and Co., Lond.; Mr. L. Roberts, Lond.; R. A. B.; Messrs. Robertson and Scott, Edinburgh.

S.—Dr. T. H. Suffern, Lond.; Messrs. Spiers and Pond, Lond.; Mr. W. Savage, Burslem; Dr. E. H. Scholefield, Ravensthorpe; Mr. A. J. L. Speechly, Lingsugur; Mr. E. Smyth, Portaferry; S. H. R.; S. B. M.; Messrs. G. Street and Co., Lond.; Southern Medical Agency, Hove, Secretary of.

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Mr. D. Turner, Arley; Dr.
Takayasu, Osaka, Japan.

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Dr. W. H. O. Woods, Norwo
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Sheppard, and Wade, Leicest
Mr. A. Willmott, Lond.; M
Walker, Washford; W. F. I
Dr. J. W. T. Walker, Lond.

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Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

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Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris.

causes; the female deaths from alcohol represent 16·3 per cent. of the female deaths from all causes. The male alcoholics represent 30·5 of the total male admissions, the female alcoholics represent 14·5 of the total female admissions. Alcohol is thus *directly* responsible for 23·16 per cent. of the total admissions—i.e., 471 cases were admitted either suffering from delirium tremens or from alcoholic dementia or from mental confusion or delusional insanity occurring in a patient showing unmistakeable signs of prolonged alcoholism. In what proportion alcohol is indirectly responsible for other classes of mental breakdown we have no exact data. Constant nipping or beer-swilling insufficient in amount to cause a condition even approaching intoxication and which would never give rise to delirium tremens *may*, and I believe *does*, by continuous action so impair the brain tissue as to make it less resistant and less capable of maintaining a healthy intellectual equilibrium.

The symptoms of delirium tremens are so well known and so easily recognisable that I do not propose to add to the many descriptions of the disease. The early symptoms in the less severe cases are not so easily diagnosed and may consist of merely a slight tremor of the hands, the tongue, and the lips, and a tendency to talk a little at random; especially is this the case when delirium tremens supervenes in a case admitted for an injury. The first thing noticed is often a confidential and mysterious manner assumed by the patient, unwarranted by circumstances. The subject matter may be the delinquencies of some person of whom you have never heard, or there may be a slight restlessness of the hands or a continual peeping about the ward. When these signs are associated with sleeplessness they should at once be recognised as heralds of an approaching storm. The statement that a cat has been sitting on the patient's bed or that a strange dog has been gambolling about the ward naturally invites the attention and suggests investigation for the discovery of other symptoms. The occurrence of epileptiform convulsions in delirium tremens is not infrequent and is of grave omen. Sudden cardiac failure sometimes occurs. A considerable difference of opinion exists as to whether the sudden cessation of drinking will induce an attack of delirium tremens. I certainly believe that it is so produced, otherwise it is difficult to account for the onset of the condition three or four days after admission in persons in the workhouse who were apparently quite healthy and normal upon entrance. I have seen it develop repeatedly in the infirmary in patients admitted for some minor ailment. They certainly had no suggestion of the condition when they came in and it is equally certain that they had no drink since admission. What else except cessation of the stimulant is to account for the onset of the disease?

The influence of sex is shown in the larger proportion of males—335 men as against 136 women:—

Males.		*Females.*	
Sent to asylums ...	13 = 3·9%	Sent to asylums ...	5 = 3·6%
Recovered	280 = 83·6%	Recovered	123 = 90·4%
Died	42 = 12·5%	Died	8 = 5·9%

The greater recovery-rate and the smaller death-rate amongst females are what would be anticipated from the known greater addiction of the male to drink. He dies from the effect of alcohol upon his heart and so his ultimate mental condition is unknown. Generally a woman has delirium tremens in a more lady-like way than a man. Her hallucinations are not so grotesque and fearsome as those of the male and are mainly confined to mice and smaller vermin, while her struggles are not so strenuous nor are her imaginary labours so intense as those of the male. This is due to the influence of previous occupation. The carman drives ghostly horses, the barman draws imaginary beer and counts elusive coins all with tremendous difficulty and with great stress. The woman's concern is mainly with the bedclothes, which suggest to her some cleansing or sewing operation, still, however, causing much anxiety and perturbation.

Some cases of mental confusion appear to be caused entirely by drink. The patients are usually found wandering by the police and have no hallucinations or feeling of terror but are simply lost and unable to give any account of themselves. They recover with a good purge and a sleep. Many of the women are secret drinkers. Several of them have been cooks from houses in the better class districts. A considerable proportion have been, however, known frequenters of public-houses, which the lowest class of women frequent, perhaps, equally with men. 403 out of 471 alcoholics (85·5 per cent.) recovered and they amount to 39·5 per cent. of the total 1020 recoveries from all causes.

The treatment of delirium tremens involves the greatest care and attention on the part of the medical man and necessitates the employment of trained attendants upon whom absolute reliance can be placed. My routine plan is after a warm bath to give five grains of calomel and one ounce of house mixture, or as an alternative two or three drops of croton oil in hot milk, and to put the patient to bed at once under the charge of a separate attendant. As a matter of course these patients will not want to stay in bed, the horses have to be attended to, or a customer in the front bar wants to be served and they *must go at once*. Often they can be humoured and coaxed; sometimes they have to be restrained. Now restraint must be at once effective and judicious, and unless kept within well-defined bounds has to be reported to the Commissioners in Lunacy. A patient may not be tied to a bed or any other object, nor may his limbs be tied together or to his body without the reasons for, and the duration of, the restraint being registered and reported, but he may be very completely tucked in by bedclothes and he may have a stout ticking coverlet lashed over the bedclothes to the bed, which will suffice to modify the movements of the majority. Some, however, either burst their coverings or engage in so exhausting a struggle with their imaginary duties that further physical restraint is inadvisable and these patients must be placed in the padded room warmly dressed and with a mattress and pillow to lie upon. If a patient should strip himself or tear off his clothes a canvas suit of trousers and jacket buckling behind may be put on over his clothes. He, of course, will not lie down, but it does him less harm to walk about than to be engaged in a constant struggle. He must be fed at frequent intervals, say every three hours, with warm egg and milk and beef-tea, taking four pints of milk and four eggs in the 24 hours. If he refuses nourishment and will not listen to the suggestion that the cup contains some of his favourite beverage, then he must be fed nasally. To effect this the largest-sized œsophageal tube which will pass into the nose should be used. No. 18 is a usual size, it enters the œsophagus much more easily and does not tend to get into the larynx nor can the patient cough it out into the mouth as often happens to the small-sized catheters generally used. The goal aimed at in the treatment of delirium tremens is the production of sleep, because we know that nine out of ten cases recover if we can achieve that result. In mild cases a hot bath and a good drink of hot milk or beef-tea will be sufficient, but in most instances some drug will be requisite, and I trust that nobody will be sufficiently credulous as to believe the story, still copied into works on therapeutics, of the Jersey practitioner who gave a patient suffering from delirium tremens an ounce of tincture of digitalis by mistake and was amazed to find him cured instead of dead. There are two explanations: either he made a mistake in thinking he had given him tincture of digitalis, or if he really gave it it was inert. A medical man told me 20 years ago that he once tried it; the result was what we might anticipate and it did not encourage a repetition on another patient. Opium and morphine are long in acting and appear to have a cumulative effect in that they act suddenly, and it is difficult to gauge the probable effect which a given dose will produce. Repeated small doses produce no effect at all, then a slightly increased dose produces effects out of all proportion to the increase. To the coal-tar preparations, sulphonal, trional, veronal, I have given an extended trial and have discontinued their use. Their action is too slow and too uncertain, the personal element is difficult to estimate, and the cardiac attacks which occasionally occur during their administration are disconcerting to the friends and dangerous to the patient, while the peculiar and varied skin hues and rashes following their use are not encouraging. I have never seen either sleep or calm produced by the hypodermic injection of any preparation of hyoscine, but, on the contrary, I have often seen intense cardiac depression follow its use. Paraldehyde, except as an emetic, is inert up to doses of half an ounce. In fact, the only combination upon which one can rely is a mixture of 30 grains of potassium bromide and 20 grains of chloral hydrate with a little tincture of lavender and water to an ounce. This may be given every four, three, or two hours for two, three, or four doses according to the severity of the case. Alcohol I do not give, but ten grains of ammonium carbonate in some hot milk, or four minims of solution of

This gives a recovery rate of 50·13 per cent., an asylum rate of 39·54 per cent., and a death-rate of 10·3 per cent.

TABLE I.—*Giving Results Year by Year in Percentages.*

Years.	Asylum.	Recovery.	Deaths.
1896	39·6	52·2	8·2
1897	33·9	46·4	19·7
1898	32·8	59 1	8 1
1899	36 7	45·4	17·9
1900	34·2	53 9	11·9
1901	34·7	52·6	12·8
1902	46 6	44 3	9·1
1903	45·4	51·25	3·35
1904	45·5	45·5	9·0
1905	38·5	49·8	11·7

TABLE II.—*Giving the Actual Figures.*

Years.	Asylum.	Recovery.	Death.	Total.
1896	82	108	17	207
1897	67	78	23	168
1898	70	126	17	213
1899	72	89	35	196
1900	66	104	23	193
1901	68	103	25	196
1902	103	98	20	221
1903	109	123	8	240
1904	82	81	15	178
1905	85	110	26	221

TABLE III.—*Giving the Results among Male Patients.*

Years.	Asylum.	Recovery.	Death.	Total.
1896	40	58	14	112
1897	28	49	21	98
1893	31	72	14	117
1899	37	52	26	115
1900	28	59	13	100
1901	25	60	14	99
1902	42	61	18	121
1903	53	76	7	136
1904	35	42	12	89
1905	33	58	21	112
Totals	352	587	160	1099

TABLE IV.—*Giving the Results among Female Patients.*

Years.	Asylum.	Recovery.	Death.	Total.
1896	42	50		95
1897	39	29	2	70
1898	39	5	3	96
1899	35	37	9	81
1900	38	45	10	93
1901	43	43	11	97
1902	61	37	2	100
1903	56	47	1	104
1904	47	39	3	89
1905	52	52	5	109
Totals	452	433	49	934

TABLE V.—*Showing the Results among Male Patients calculated in Percentages.*

Years.	Asylum.	Recovery.	Death.
1896	35·7	51·1	13·2
1897	28 6	60·0	21·4
1898	26·5	61·5	12·0
1899	32·2	45·2	22·6
1900	28·0	59·0	13·0
1901	25·3	60·6	14 1
1902	34·7	50 4	14·9
1903	38 9	55·9	5·2
1904	39 3	47·4	13 3
1905	20 5	51·1	28·4
Percentage on the ten years' totals	32 0	53·4	14 6

TABLE VI.—*Showing the Results among Female Patients calculated in Percentages.*

Years.	Asylum.	Recovery.	Death.
1896	46·3	52·6	1 1
1897	55·7	41 4	2·9
1898	40 6	56 25	3·15
1899	43·2	45·7	11·1
1900	40 9	48·4	10·7
1901	44 3	44·3	11·4
1902	61·0	37·0	2·0
1903	53 8	45·2	1·0
1904	52 8	43 8	3·4
1905	47·6	47·6	4·8
Percentage on the ten years' totals	48 4	46 3	5·3

The above figures show conclusively that, *relatively*, more females than males go to asylums, that more males recover than females, and that more males die than females.

During the decade chosen we have had the periods of stress and excitement caused by the Boer war and we have experienced the distress and poverty which invariably follow in the wake of a struggle involving great sacrifice and sub- sequent retrenchment and monetary stringency. The figures with which we are dealing are, however, too few in numbers and too easily influenced by accidental disturbances to reflect accurately any general and widespread movements, and in addition we have to reckon with the fact that Lewisham has by its rapid development changed during the past few years from a semi-rural locality to a district crowded with small villa residences.

Alcohol.—Alcohol, in accordance with previous experience, is directly responsible for a large number of admissions—471 cases, representing 23·16 per cent. of the admissions from all causes. Of these 403, or 85·5 per cent., recovered; 18, or 3·8 per cent., were sent to asylums; and 50, or 10·6 per cent., died. Thus alcohol furnishes 39·5 per cent. of the total recoveries; 2·24 per cent. of the cases sent to asylums; and 23·9 per cent. of the total number of deaths.

The influence of sex is striking and interesting. The male alcoholics numbered 335, or 71·1 per cent. of the alcoholic cases, while the female alcoholics numbered 136, or 28·9 per cent. Of the 18 cases sent to asylums 13 were males and five were females, the males representing 3·7 per cent. of the total number of males sent to asylums and the females representing only 1·1 per cent. of the number of females sent to asylums for all causes. Of the 403 recoveries 280, or 69·5 per cent., were males and 123, or 30·5 per cent., were females. The male alcoholic recoveries represent 47·7 per cent. of the male recoveries from all causes, while the female alcoholic recoveries account for 28·4 per cent. of the female recoveries from all causes. Of the 50 deaths from alcohol 42 or 84 per cent. were of males and eight or 16 per cent. were of females.

alcohol represent 26·2 per cent. of tl

Mania.—Of 149 cases of mania 49, or 32·9 per cent., were those of men, while 100, or 67·1 per cent., were those of women. 123, or 82·5 per cent. of these cases, were sent to asylums; 21, or 14·1 per cent., recovered; and five cases, or 3·3 per cent., died. Of the 49 males, 36, or 73·4 per cent., were sent to asylums; 11, or 22·4 per cent., recovered; and two, or 4·1 per cent., died. Of the 100 females, 87 per cent. were sent to asylums; 10 per cent. recovered; and 3 per cent. died.

The line of treatment must be, first, attention to the bowels and feeding and sleep. It is for these patients that a padded room is almost essential. Their actions are so sudden and their violence so spontaneous that they can neither be trusted nor left unattended. Exaltation is rarely confined to one emotion. An augmentation of religious feeling is always associated with a desire to sing and also with a marked increase of eroticism manifested by a desire to strip and to indulge in self-abuse.

Stuporous conditions.—These conditions account for 141 cases, of which 61, or 43·26 per cent., were those of men, and 80, or 56·7 per cent., those of women. 56, or 39·7 per cent., of the total were sent to asylums; 82, or 58·1 per cent., recovered; and three, or 2·1 per cent., died, one of these being a female case of myxœdema. Of the 61 males, 27, or 44·2 per cent., were sent to asylums; 33, or 54·1 per cent., recovered; and one, or 1·6 per cent., died. Of the 80 females 29, or 36·25 per cent., were sent to asylums; 49, or 61·25 per cent., recovered; and two, or 2·5 per cent., died. This class includes all those cases characterised by loss of memory and by an inability adequately to appreciate environment and which range from a slight mental confusion to a blotting out of all previous experience, together with a marked limitation of the power of receiving fresh impressions. The mother who, overworked by domestic duties, over-taxed by a too frequently recurring maternity, "finds the children too much for her" and feels muddled. The person who wanders away from home and is found some days after by the police, footsore, weary, and very dirty, unable to give a name or any connected history represents the other end of the sequence. These cases resemble the delusional and melancholic classes very much, the delusional element being absent and the mental confusion being much more pronounced. I believe it to be due to a toxic condition and for causation and treatment I have nothing to add to the suggestions made for delusional insanity and *melancholia*.

General paralysis of the insane.—This class was represented by 83 cases, 79, or 95·2 per cent., being men and four, or 4·8 per cent., being women. 72, or 86·7 per cent., were transferred to asylums; five, or 6 per cent., recovered their mental equilibrium sufficiently to be handed over to their friends; and six, or 7·2 per cent., died. Of the 79 males, 69, or 87·3 per cent., were asylum cases; four, or 5 per cent., improved; and six, or 7·6 per cent., died. Of the four women three were sent to asylums and one improved.

Senile dementia.—This condition furnishes 190 cases, of whom 119, or 62·6 per cent., were males, and 71, or 37·4 per cent., were females. 28, or 14·7 per cent., of these were sent to asylums; 68, or 35·8 per cent., recovered sufficiently to warrent their discharge; and 93, or 49 per cent., died. Of the 119 males, 14, or 11·7 per cent., were sent to asylums; 32, or 26·8 per cent., were relieved and restored to their friends; and 73, or 61·4 per cent., died. Of the 71 females, 15, or 21·2 per cent., were sent to asylums; 36, or 50·7 per cent., were relieved and restored to their friends; and 20, or 28 per cent., died. Senile dementia varies markedly in degree and ranges from a slight forgetfulness for recent events to a condition indistinguishable in its intensity from acute mania. In its common form the patient may be to all appearance perfectly rational during the day, but as evening approaches restlessness becomes marked, the sense of present environment is lost, and the patient is translated to some earlier epoch of life. If a woman she is with her children. Sometimes they are babies and she is nursing them or is fearful that they are in danger of being burnt; sometimes they are grown up and she is directing a daughter to perform some domestic action. In old men the thoughts wander back to work, although occasionally from phrases and gestures employed, a tavern carousal would appear to be the concern on hand. I have never observed the slightest sexual suggestion either in men or women.

There is a growing feeling that cases of senile dementia should not be classed as lunatics. The county asylums object to their presence because they are incurable, they occupy valuable and needful space, and they depress the recovery ratio in a marked manner. The Metropolitan Asylums Board asylums superintendents also object to them—an objection which appears somewhat unreasonable as the Metropolitan Asylums Board asylums were built especially to relieve workhouses from the presence of these cases. Old people who cannot find their way about a ward, who are unable to recognise their own beds, who prowl about the place in a semi-nude condition, who try to get into bed with other inmates and who resent their exclusion, who sing and chatter and call upon imaginary persons all night, who would, if not prevented, light fires upon the floor, are not sufficiently docile to be retained in ordinary workhouse dormitories, while their presence in an infirmary ward would be intolerable. If the asylums will not have them it must mean the erection of separate incurable mental blocks. From the relatives' point of view it is regrettable that an affection which is really due to senile decay rather than to disease should inflict the stigma of insanity upon the family stock. The high male death-rate is accounted for by the fact that the acutely maniacal cases, and which are nearly all fatal, occur much more frequently in men. Again, fewer women are admitted because they are much more easily managed at home and when treatment has quieted them down the friends receive a mother or grandmother back again much more readily than they will an old man. A woman is much more docile and domesticated, whilst a restless old man is an intolerable nuisance in a small house.

For treatment the milder cases who turn night into day and *vice versâ* should be kept awake at day and put to some light work; there is then more chance of them sleeping at night. In these, as in other cases, I believe that a full dose of bromide of potash and chloral hydrate, 30 grains of the former and from 20 or 25 of the latter, is the best and safest hypnotic. Small doses by cutting off the control of the higher centres and increasing the automatism of the patient's actions aggravate the restlessness and garrulity.

Epilepsy with mental derangement.—These conditions supplied 112 cases, 81, or 72·3 per cent., being those of males, and 31, or 27·7 per cent., those of females. In 22 males and in ten females the mental symptoms, which consisted in violence and hebetude after a fit, were sufficiently marked to necessitate their detention in an asylum. In 53 males and in 21 females the condition was sufficiently alleviated to permit their return home. Six males died in the condition known as status epilepticus. The treatment of epilepsy is exceedingly unsatisfactory; except in acute conditions I rarely administer drugs.

Idiocy.—Idiocy accounts for 75 admissions, 50, or 66·6 per cent., of the patients being males, and 25, or 33·3 per cent., being females. 18 males and five females were transferred to idiot asylums, the friends of 30 males and 19 females were induced to take them again under their care, and two males and one female died from intercurrent affections.

Temper.—In temper as a cause of admission we have instances of wild ungovernable outbursts which were alarming and of maniacal intensity in some cases. The sexes are nearly evenly balanced—ten males and nine females, all of whom recovered. The discipline of a mental ward, with the faint suggestion of a lunatic asylum in the background, is a splendid corrective.

Malingering.—There were seven cases of malingering, all the subjects being males. Some were old asylum patients who evidently desired to return to a haven of comparative rest from the strife of competition. One was a simulation of the popular conception of hydrophobia, enacted by a youthful mime to impress the female employees of a drapery establishment. The interrupted current terminated the performance.

Cardiac mania.—This condition, in which the mental affection was obviously the result of valvular disease, was responsible for seven admissions, three males and four females. One patient, in whom a noisy dementia supervened, was sent to the asylum; four patients recovered and two died.

Delirium.—There were 19 cases of delirium, ten males and nine females. In one case of acute delirious mania, that of a male, the patient was sent to the asylum. The other patients were the subjects of symptomatic delirium, of enteric fever, pneumonia, gangrene, epitheliomata, &c. Six patients recovered and three died.

Hysteria.—Of 48 cases of hysteria three of the patients strychnine hypodermically are excellent cardiac stimulants. By keeping a close watch upon your patient you will notice the onset of drowsiness and can then get him into bed where he will sleep soundly for eight or ten hours and be drowsy and perhaps muttering for another 12 hours. At the end of that time his mental condition should be practically cured, but in some cases after a brief period of semi-consciousness he drifts into a condition approaching coma characterised by low muttering delirium, dry tongue, collection of sordes upon the teeth and lips, and incontinence of urine and fæces, he lies flat on his back and takes no notice of, anything, he asks for nothing, and if let alone, beyond moving his head from side to side and some non-purposive movements of the arms, he will remain in the supine position. His heart becomes rapid from peripheral neuritis of the vagus and if he does not succumb to hypostatic pneumonia he may develop peripheral neuritis of the legs or paralysis of the intercostals or diaphragm from the same reason. The treatment for the condition is scrupulous cleanliness, attention to the back and heels to avoid bed-sores, and catheterisation of the bladder; turning the patient from one side to the other at intervals of an hour and fixing him in the desired position by pillows. This will enable the upper lung to act with freedom and it also prevents the accumulation of blood at the bases of the lungs. The most careful attention must be given to the toilet of the mouth, otherwise inflammation and swelling and possibly abscess of the parotids will ensue from a spreading septic infection of the duct. Nasal feeding is usually requisite although sometimes fluid may be carefully administered through a feeding cup. Large doses of ammonium carbonate internally and three or four minims of solution of strychnine hypodermically four-hourly form the most successful line of treatment.

There is a condition of alcoholic dementia into which a drinker may lapse after any acute illness without any suggestion of delirium tremens. He hovers between semi-consciousness and semi-coma. He recovers when roused and recognises his friends when sufficiently pressed. He will take food so long as too much trouble in mastication is not required. He can get out of bed and can walk, or rather stagger, round the room. He will talk sensibly for a minute or so and then relapse into incoherency. He is usually jaundiced, with a foul tongue and with a slightly increased range of temperature. His dangers are hypostatic pneumonia and peripheral neuritis, otherwise he may recover in two or three months.

After an attack of delirium tremens the bodily health may be entirely regained and yet the mental condition may be one of varying degrees of dementia which may range from a mere loss of memory for recent events to a total inability to appreciate environment. These are the cases which, classed as alcoholics, we transfer to the asylums.

Delusional insanity.—The next group is that of delusional insanity and here the dividing line between this group and melancholia is not very definite. Many delusional patients are depressed and most melancholics have delusions. I have included in the delusion class all those where the delusion appears to be primary and where the depression (if existing) seems to be the result of the delusion, and amongst the melancholics I have classed those whose delusions have apparently arisen from antecedent mental misery. Out of 407 admissions 283, or 69·5 per cent., were sent to asylums; 118, or 29 per cent., recovered; and six died.

Males (178 admissions).		*Females (229 admissions).*	
Sent to asylums ...	110 = 61·8%	Sent to asylums ...	173 = 75·5%
Recovered	63 = 35·4%	Recovered	55 = 24·0%
Died	5 = 2·8%	Died	1 = 0·5%

Considering the cases as a whole, it seems strange that 29 per cent. of cases admitted for so grave a condition as delusional insanity should recover in the short period of, say, 17 days. I have no doubt that in some of these recoveries the exciting cause of the breakdown has been alcohol, although there has been no suggestion of tremor or other indication of delirium tremens. Pulmonary tuberculosis is a frequent cause of delusional insanity, and here an improvement of the general health is often associated with a loss of the delusion. Cardiac valvular disease is another cause. Uterine myomata and other abnormal womb conditions are sometimes associated with delusions and their removal or alleviation is followed by mental equilibrium. I recall one case where I removed an ovarian cyst in a woman whose delusions of persecution disappeared on her restoration to health.

Another point which would repay elucidation is the after-history of these delusional cases. How many of them turn out to be early cases of general paralysis where the mental symptoms have preceded the physical. We rarely see a case of general paralysis in a woman in an infirmary and yet they are not uncommon in asylums. Many of these cases are suicidal and necessarily require constant supervision. Some may be homicidal but I can recall only one definitely homicidal case in the whole of my experience, although many had distinct ideas of persecution by definite persons. A sudden accession of resentment and a favourable opportunity might furnish the exciting cause for the commission of a deed of violence and where the idea of killing is entertained it is generally associated with a feeling of affection for the intended victim, who is usually a wife or child, most of the would-be executioners being alcoholics in a state of delusional depression. Again, most of the male suicides are depressed alcoholics. The majority of suicides and attempts at self-destruction which come under my notice occur in young women and the chief point of interest is the relatively unimportant motive which leads to the act. "My mistress was cross with me," is a very frequent reason alleged. The favourite poison at present is the disinfectant solution supplied for the asking by the borough council, which, whatever its bactericidal properties may be, is not followed by any great fatality when taken as a beverage. A few days ago a woman took half a pint of it "because her teeth ached," which seems a trivial reason for wishing to terminate her existence. Spirits of salt (commercial hydrochloric acid) is easily obtained and evidently has a reputation as an agent for self-destruction; its effects are awful and the lingering sufferings of its victims are pitiable in the extreme. Both men and women occasionally attempt to drown themselves in the Ravensbourne; they always think better of it, its smell is so pungent that, although anxious to face death, they are not prepared to meet it in so horrible a form. Cut-throats are mostly males; occasionally a woman attempts it, but it is a very half-hearted performance. I presume that topographical anatomy is not yet a compulsory subject at the Council schools, as the carotids continue to escape. It is sometimes strange that they are not injured. I recall a case where the trachea and œsophagus were completely severed and the vertebral column deeply nicked by a razor without any important artery being cut. After careful suturing of the divided structures he recovered. Gun-shot attempts are confined to males. As an example of a determined suicide may be mentioned a man who threw himself from a window and broke his neck. The fracture could easily be felt both behind and in the pharynx. The spinal cord was not injured. By encasing his shoulders, neck, and head in plaster-of-Paris we obtained very good union of the fracture, and as his delusions persisted he was, after some weeks, transferred to one of the county asylums. After a few months he was discharged and within a few days of obtaining his freedom he threw himself under a brick-cart, this time with success.

Melancholia.—This condition is responsible for 233 admissions, of whom 141, or 60·5 per cent., were sent to asylums; 91, or 39·5 per cent., recovered; and one died (a female committed suicide). Of the 80 males, 41, or 51·25 per cent., were sent to asylums; and 39, or 48·75 per cent., recovered. Of the 153 women, 100, or 65·3 per cent., were sent to asylums, and 52, or 33·3 per cent., recovered. Comparing the sexes, we note that 153, or 65·6 per cent., were women, and 80, or 34·3 per cent., were men. The asylum rate of women is greater than men—65·3 per cent., as against 51·25 per cent. The recovery rate is less—33·3 per cent. of women, as against 48·75 per cent. of men.

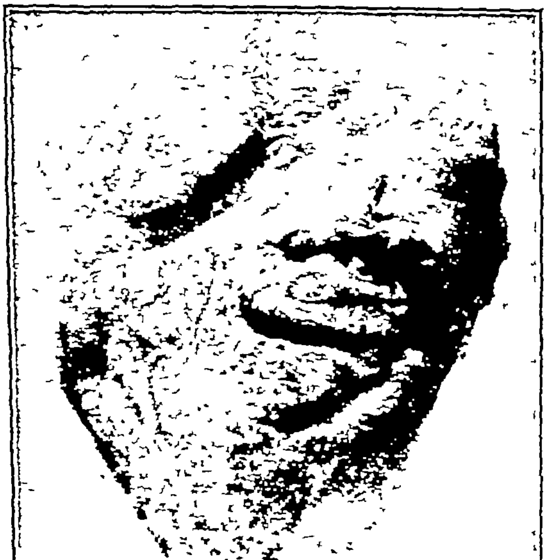
In both delusional insanity and melancholia the line of treatment is the same. Search for some physical cause, examine every organ carefully—the lungs, the heart, and the uterus. The digestive tract will inevitably be out of order. Constipation is always present. Pyorrhœa alveolaris, with its attendant foul discharge into the mouth, swallowed and absorbed, is a frequent accompaniment. Some of these cases of depression have mouths which are charnel houses of decayed teeth. Start with a brisk purge, five grains of calomel or five grains of blue pill, followed by a saline draught, attend to any faulty bodily condition, give the patients sleep by means of a full dose of chloral, keep them in bed, and if they are of poor nutrition, as is usually the case, feed them up with abundance of milk and eggs.

was turned downwards. In freeing the third cartilage the pleura was wounded. The rent, about half an inch in length, was at once clipped with artery forceps and closed by two sutures. A rent in the pericardium about two and a half inches in length was now exposed through which blood was slowly escaping. The pericardium was full of blood-clot which was gently sponged away, a piece of bone one inch by half an inch was removed, and a small spicule of bone was felt imbedded in the heart and extracted. On further examination a wound was felt in the right ventricle and on following this along another piece of bone was felt. This was seized with forceps and removed and its removal was followed immediately by a terrific gush of dark blood. I at once plugged the wound in the heart by plunging my fingers in and found that the insertion of three fingers practically stopped the hæmorrhage; I also found that my fingers were within the cavity of the heart, the index being separated from the middle and ring fingers by a band of tissue, which at the time I took to be the anterior flap of the tricuspid valve. Three sutures were inserted, withdrawing a finger as each was passed and by them the wound was roughly drawn together, and then ten sutures were passed through the muscular coats, using the first three, which were left long, to steady the heart and bring the wound into view. A second row of ten Lembert sutures were passed through the pericardial serous coat closing in the first row. The wound was now quite closed and no bleeding was going on. After the first flow of blood transfusion into the saphena vein of the right leg was commenced but was stopped as the immediate increase of blood pressure increased the hæmorrhage. The transfusion was continued when the first row had been tied. The contractions of the heart became very lively as each suture was inserted and but for this somewhat violent stimulus it appeared several times that pulsation would have ceased. The pericardium was cleansed with gauze and partly closed with a row of sutures, the fragment of sternum was replaced, and the wound was closed except at its upper and lower angles. The fragments of the third and fourth costal cartilages, having their sternal ends also detached, were not replaced. The wound was irrigated freely with sterilised water and dressed with double cyanide gauze.

During the operation a second hypodermic injection of six minims of liquor strychninæ were given and at 5 P.M., when the patient was in bed, a further injection of five minims was given; also an enema of saline solution (half a pint) and brandy (half an ounce). His pulse was 116, regular, and of fair force, but small volume. He recovered consciousness by 5.30 P.M. and complained of thirst and was given sips of lime juice and water. At 7 P.M. he was restless and sick. The dressing had come through but was not disturbed. The temperature was 97·6° F. The sickness continued at intervals through the night. On the 22nd, at 5 A.M., half an ounce of brandy and the white of an egg in half a pint of saline solution were given as an enema and at 7 A.M. three minims of liquor strychninæ. At 8 A.M. the temperature was 100°, the pulse was 116, and the respirations were 30. At 9 A.M. the enema was repeated; the patient was rather drowsy. The injection was repeated at 12.30 P.M. and 3.30 P.M. The patient complained of no pain, but a feeling of weight in the chest and slept a few minutes at a time all through the day. The pulse-rate kept at about from 120 to 130, but the respiration rate rose at 2.30 P.M. to 72, falling by 5 P.M. to 61. The wound was dressed at 7 P.M. There was no hæmorrhage but free serous discharge. He was given an enema of half an ounce of brandy and half a tin of Brand's essence was given in five ounces of saline solution. He slept most of the night quietly, but on waking occasionally would have an attack of restlessness with difficulty in breathing. The enemata were repeated every four hours. At midnight the pulse was 120 and the respirations were 48. He took sips of water or milk-and-water continually when awake. A few râles were heard over the base of the left lung in the axillary region but no signs of pneumothorax were present. On the 23rd the wound was dressed at 1.30 A.M. There was a free serous discharge which was slightly turbid. The respirations were 45. The pulse was 118 and more thready than ever before; it improved after five minims of liquor strychninæ were given hypodermically. During the night he had six bouts of restlessness, all following the same course, the pulse first becoming thready and more frequent; an attack of dyspnœa followed with some pain in the chest, the patient becoming restless for a time. During the day these attacks were slighter and less frequent and he slept most of the time. He was very thirsty and took about three ounces of milk-and-water every hour. On the 24th at 12.30 A.M. the pulse was 144 and irregular. The patient was sleeping quietly. He had a fairly comfortable day. There was free discharge from the wound, which was dressed twice. The fluid draining from the wound was serous and evidently pericardial; the quantity soaking into the dressing was very considerable. At midday there was a very free escape of fluid, and after this his breathing and pulse improved very much and he had no severe dyspnœic attacks during the rest of the day. On the 25th he was still very thirsty and drank milk and albumin water freely. He was sleeping well and quietly, but his breathing was noisy when awake; a few râles were still present. At 3 P.M. he had a slight rigor; the pulse was very thin and 135 per minute. He was given a hypodermic injection of three minims of strychninæ and six minims of tincture of digitalis, and at 4 P.M. the pulse was much improved—126 per minute. On the 26th the patient had passed a very fair night. He was rather faint at 6 A.M. but improved after five minims of liquor strychninæ had been administered hypodermically. The wound was dressed at 8 A.M. and 5 P.M. The bowels were freely opened after an enema of soap and water and two drachms of turpentine. He had a comfortable day but perspired freely at times. No râles were to be heard now and breathing was quite easy.

The patient's condition improved a little each day till June 29th. The wound was dressed every eight hours after the 26th as the lacerated skin and subcutaneous tissue at the site of the original injury appeared likely to slough. On the 28th some of the stitches were removed as they were cutting through the skin. The wound was irrigated at first with biniodide solution 1 in 4000 and later with sterilised water and lightly packed with gauze. On the 29th the wound was clean and more healthy except at the edges of the fissure in the sternum where there were a good many shreds of necrosing aponeurotic tissues. On the 30th he had several attacks of faintness and at 11 P.M. there was a little blood on the dressing but no hæmorrhage was apparent on

FIG. 2.



Appearance of heart after removal. The stitches have been removed and the wound opened up. The left ventricle has been cut away up to the interventricular septum.

were males and 45 were females. They all recovered. All were the subjects of emotional storms of prolonged duration.

Mental derangement associated with gross brain lesions.—There were 38 cases under this heading, 28 of the patients being males and ten being females. Some were cases of cerebral hæmorrhage, some of brain tumours, while others were those of syphilitic endarteritis. Two of the patients were sent to asylums, 15 recovered, and 21 died.

Puerperal mania.—This condition was responsible for 25 cases. 21 patients were sent to asylums, three recovered, and one died.

Amongst unclassified cases were the following: one case of a male who was the subject of pernicious anæmia with delusions and who died; another of a male who suffered from locomotor ataxy with delusions and who recovered his mental balance; a third of a male who had contracted the cocaine habit and had suffered from delusions and who recovered; three cataleptic cases among females (one was sent to the asylum and the other two recovered); and two cases of domestic infelicity in which the wife succeeded in securing the temporary incarceration of a husband with an ill-regulated temper, both being released after examination.

My object in choosing this subject for my presidential address is to bring to your notice the curability and the temporary nature of the large proportion of mental cases. 50·3 of our cases have recovered; 39·54 only have gone to asylums. As honorary secretary of the lunacy committee of the Metropolitan Workhouse and Infirmary Medical Officers Conference I have collected the figures for London for the last four years.

Years.	Cases.	Sent to asylums.	Cured.
1902	8076	3920	3560
1903	8004	3782	3443
1904	7654	3716	3165
1905	7322	3583	2877

These figures show that so far from lunacy having increased in London it has in four years steadily decreased, being 754 less in 1905 than in 1902, the numbers sent to the asylum from the workhouses and infirmaries being also 337 less. I strongly urge that the Lewisham system should be everywhere adopted and that no case should be sent directly to an asylum, but that all should go through the sifting process of the infirmary half-way house. For cases who are not paupers a difficulty at once arises, for directly an institution be established to deal solely with mental cases, whether in their incipient or later stages, it immediately becomes in the eyes of the public a lunatic asylum and the stigma of lunacy adheres to all who accept its help. The solution is in attaching a mental block to each general hospital, an arrangement beneficial to both the public and the profession. I would discourage the practice which still obtains in a few districts of certification by the family attendant of the justice. I know of one case where a consulting oculist was given a turn at a pauper case in a London workhouse. A strange practitioner, seeing the patient for a few minutes, then and there determining his destination, to the exclusion of the medical officer who has all the available knowledge concerning the individual and all the responsibility of his care and treatment, reduces the working of the Act to a mere farce.

May I, in conclusion, express the opinion that the result we have achieved in Lewisham is one of which we may justly feel proud. It has required, and it has received, the loyal coöperation of all authorities—of the Blackheath bench of magistrates, of the Lewisham board of guardians, and the medical officers and the relieving officers. The knowledge that 1020 persons have been spared from being branded as lunatics cannot be other than a source of gratification to all concerned.

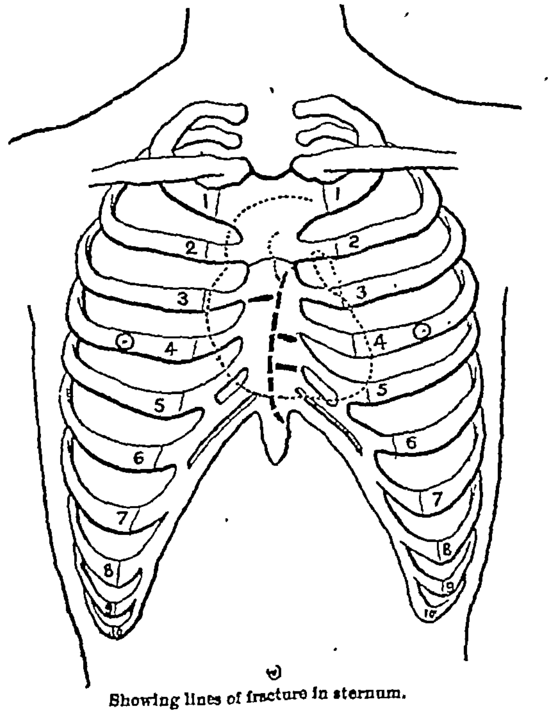
PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—The sixty-fifth session of the School of Pharmacy of this society will commence on Monday, Oct. 1st, when the President will present the Pereira medal, and the inaugural sessional address will be delivered by Sir George Watt, M.B., C.M., C.I.E.

SUTURE OF PERFORATING WOUND OF THE HEART; DEATH ON THE ELEVENTH DAY.

BY FREDERICK T. TRAVERS, B.S. LOND., F.R.C.S. EDIN.,
HONORARY SURGEON TO THE WEST KENT GENERAL HOSPITAL.

AT 11.30 A.M. on June 21st the patient, an active lad, aged 19 years, after climbing over the surrounding fence, some six feet high, scrambled on to the upper stone of the cromlech known as Kit's Coty House. This stone is about eight feet from the ground and the railings are about three feet distant from it. He attempted to leave by stepping on one of the longer spikes of the fence from the stone. In doing so his foot slipped and he fell forward and was impaled on the spike. He managed to lift himself free and fell inside the fence. Nearly an hour elapsed before medical aid could be obtained or the assistance necessary to lift him on a hurdle over the fence. He was brought to the hospital by Dr. T. A. Palm of Aylesford at 2.45 P.M. I saw the patient immediately after his arrival at the hospital; his clothing was saturated with blood, he was just conscious, blanched, with small frequent pulse and sighing respiration. There was a transverse wound about two inches in length over the lower end of the sternum, through which a vertical fissure in the bone could be seen. There was little bleeding. (Fig. 1.)

FIG. 1.



Showing lines of fracture in sternum.

As the account given rendered injury of the structures within the chest probable I thought it advisable to anæsthetise the patient and to explore the wound. Six minims of liquor strychninæ were given subcutaneously, and chloroform was administered. The fragments of the sternum were separated and the finger introduced. A loose piece of bone and beyond it the surface of the heart were felt. The wound was therefore extended by a curved incision from its right extremity, running upwards and then to the left. This exposed the lower half of the sternum on the left side; the vertical fissure extended upwards to the second right costal cartilage and there were fractures through the left half between the fourth and fifth and fifth and sixth costal cartilages; the portion between the second and fifth costal cartilages was missing. The third, fourth, and fifth cartilages were divided at their attachment to the ribs and the [illegible] of the sternum non-virulent, and "streptococcus longus" for the long-chained forms, those in which the long chains settle down as a flocculent or granular precipitate, leaving the supernatant broth clear; he showed that the majority of virulent forms belong to this latter type. No doubt there is a certain substratum of convenience and, indeed, of truth in such a division, but as a basis of systematic classification it is inadequate. In one and the same culture chains of the most varying length may be found; the length of the chains may vary according to the chemical composition of the medium in which the coccus grows and may vary on subculture. The length of chain depends upon the degree of cohesion between its constituent cocci, which is not a sufficiently fundamental character. Nevertheless, it is certainly true that some streptococci tend to grow in short chains and some in long, and that short-chained forms are less frequently and intensely pathogenic than long-chained forms. Morphology is, in our opinion, of some degree of value in classification, and should be taken into account, in connexion with other and more fundamental characters. A convenient terminology, as regards length of chain, is as follows: "brevissimus," for the forms occurring chiefly as diplococci; "brevis" for somewhat longer chains (e.g., of from four to eight elements); "medius," for forms showing chains of moderate length (e.g., from eight to 16 elements); "longus" for the long-chained forms; "longissimus" for chains of inordinate length; and "conglomeratus" for those long-chained forms which are contorted into dense balls. The "brevis" types habitually render broth uniformly turbid, while the "longus" and "conglomeratus" types show a clear broth with a stringy or granular deposit; the "medius" type is intermediate in this respect. But no sharp line separates these various types and the terms are merely of convenience in description. Gordon has drawn attention to the occurrence of bacillary forms in certain streptococci when grown on solid culture media, more particularly on blood serum. This character may perhaps prove of some value in classification, but our knowledge of the distribution of these bacillary forms is too incomplete for any final verdict.

Cultural characters upon ordinary laboratory media are of very little value apart from the growth in broth. The minute differences in the modes of growth upon gelatin and agar-agar are too variable for purposes of differentiation. There is, however, one biological feature which we think of definite value—namely, the temperature requirements of the various types. Fischer has introduced the convenient terms "psychrophil" for those bacteria growing best at the ordinary summer air temperature and "mesophil" for those growing best at the temperature of the human body. All the pathogenic streptococci naturally belong to the mesophil group, but while some are capable also of vigorous psychrophil growth others are incapable of growth at 20° C. In judging of this point attention must be paid to the precise temperature of the incubator, for even 2° C. may make all the difference as to whether a given streptococcus does or does not show visible growth on gelatin. A very few streptococci possess the power of liquefying gelatin; we have met with two or three such types to which allusion will be made later. It is doubtful whether more stress should be laid upon such a character than upon the other chemical characters to which we shall have to draw attention.

Staining properties are of no value whatever in differentiating the streptococci. They all stain well with the ordinary basic anilin dyes; none are acid-fast and all the pathogenic forms which we have investigated stain well by Gram's method.

Pathogenic power has naturally received much attention in the attempts to distinguish the different streptococci from one another. It may be looked upon from two points of view—the clinical and the experimental, and these do not invariably coincide in their indications. A streptococcus may be the cause of a septicæmia or of an inflammatory affection in man and yet produce little or no effect when inoculated into an experimental animal. There is, it is true, a broad general correspondence in pathogenic effect upon man and rodents, but it is not universal. In this paper we propose to deal only with those forms of streptococci which we have found clinically to be pathogenic for man. For practical purposes the only test of virulence which can be employed as a routine in examining the streptococci is animal inoculation, the mouse and the rabbit being the most suitable animals. There is a circumstance which deprives this test of a good deal of its value as a means of discriminating between different sorts of streptococci—namely, the great readiness with which virulence is lost and gained by these organisms. After only a week or two on culture media, and in the case of pneumococci after only a day or two, virulence may largely be lost. On the other hand, after one or two passages through a susceptible animal a streptococcus of only feeble virulence may become intensely pathogenic. One and the same strain of streptococcus may at different stages in its career produce now a rapidly fatal septicæmia, now a spreading erysipelas, now a localised suppuration, and now no effect at all. The difficulty may be in part overcome by invariably testing the streptococcus upon an animal immediately upon its isolation from a case of human disease, but it remains true that, useful though it be as a subsidiary test, pathogenesis cannot be employed as a fundamental character for the classification of the streptococci.

The various serum reactions, again, which may be induced against streptococci have so far failed as a means of accurate discrimination between them. Agglutination tests carried out by us with the serum of an animal immunised against a given streptococcus upon a whole series of other streptococci have indeed shown that considerable differences exist; but they are graduated differences, not sufficiently defined to be of more than subsidiary help in classification. Moreover, the technique of streptococcus-agglutination is troublesome and disappointing. No sufficient data are to hand as to the bactericidal and opsonic reactions against streptococci to warrant any conclusion as to their taxonomic value; there is as yet no evidence that any rigidly *specific* limits can be assigned to such reactions even though generic differences may exist.

The difficulties above outlined amply account for the doubt and uncertainty which have hitherto attended the systematic classification of the streptococci. But there remains the possibility of differentiating them by their chemical powers or metabolic reactions—a possibility which has received a remarkable impetus from the recently published work of Dr. Mervyn H. Gordon. Such metabolic differences have already proved of signal service in the differentiation of the members of the bacillus coli group, and it may fairly be argued that ability to utilise this or that foodstuff is a character of quite as fundamental a nature as any that morphology can offer. Some few tests of this nature have been in use for a considerable time—e.g., the power of clotting milk—but Dr. Gordon has been the first to approach the matter in a comprehensive way. His researches are embodied in a paper contributed in the report of the medical officer to the Local Government Board for 1903–04[1] and have since been summarised by him in THE LANCET.[2] His method consists in preparing a sugar-free broth and adding to it 1 per cent. of the test substance, together with some litmus. Ability on the part of the streptococcus to utilise the test substance as food is indicated by vigorous growth with the appearance of a sharp acid reaction. He first tested 33 chemical substances, belonging to the carbohydrates, glucosides, and polyatomic alcohols, upon a series of ten diverse streptococci. Many of these substances were affected uniformly by all ten streptococci, others by none at all, and such substances were rejected as of no differential value. A number of the substances showed, however, marked differences between the different streptococcal strains and from these he selected seven as of special differential value. They included two disaccharides—saccharose and lactose; one trisaccharide—raffinose; a polysaccharide—inulin; two glucosides—salicin and coniferin; and one alcohol—viz., mannite. To these seven tests he added the clotting of milk and the reduction of neutral red, the latter under anaerobic conditions. These nine tests we shall refer to briefly as "Gordon's tests." He proceeded to apply them to a large number of strains of streptococcus, 300 in all, isolated from normal saliva, and he found that he could distinguish no less than 48 chemical varieties. The research was primarily undertaken with the view of ascertaining whether any tests could be found for distinguishing the streptococci of saliva from those of other origin. He tested also a few streptococci from miscellaneous sources, including some from disease-processes in removing the gauze. He became more restless later and wandered a good deal and died at 2.30 A.M. on July 1st.

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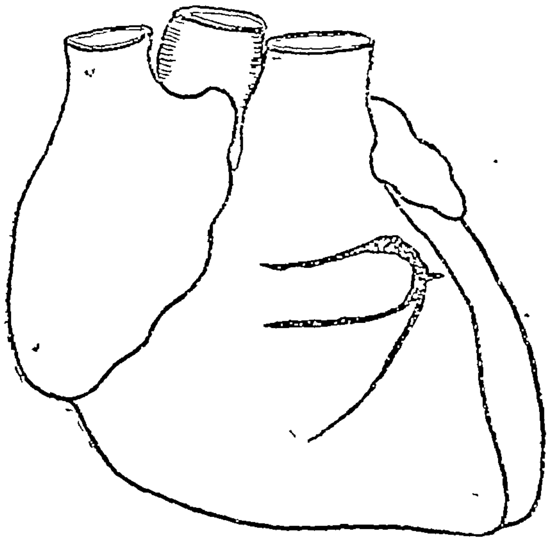
[1] Vol. xxxiii., p. 383.

[2] THE LANCET, Nov. 11th, 1905, p. 1400.

At 2.30 P.M. on July 1st an examination was made of the injuries. On opening up the wound there was some recent lymph seen about the divided rib cartilages. There was no blood or clots. The edges of the fractured portions of sternum were necrotic and a further fracture was found running transversely just below the third costal cartilage. The wound in the pleura could not be found. The pericardial wound, two and a half inches in length, was healed with the exception of about a third of an inch in the centre. On opening up the pericardium a clot was seen covering the heart, partially organised and adhering somewhat firmly to it. This was carefully removed and several ounces of dark fluid blood removed from the pericardium; there was no pus in the sac. The wound in the heart was difficult to determine except at its left and upper extremity, the greater part being covered by smooth lymph. The heart was removed with as little handling as possible. (Fig. 2.) There was some recent and firmly adherent lymph on the auricular appendages, chiefly on the right, around the bases of the great vessels, and on the left ventricle, but little on the right ventricle except about the wound. The wound in the heart was well closed except at a point where a small portion of the muscular wall between two parts of the rent showed signs of necrosis. The rent was trifid externally, or rather one long rent with two lateral branches, and was situated altogether in the right ventricle; in the recent state it measured in length two and a quarter inches and extended right up to the inter-ventricular septum. (Fig. 3.)

FIG. 3.



Diagrammatic view of wound. It will be seen that one tear extends to the interventricular septum.

From within the rent appeared to be more irregular and was somewhat)–(-shaped and was only healing at the extremities of the various parts of the rent.

The most noticeable features of the case were the plugging of the wound in the heart by the detached fragment of sternum, which almost entirely stopped the bleeding, and the tolerance shown by the heart to the injury and the handling required at the operation. Pulsation continued regularly while three fingers were held in the wound with their tips within the cavity of the ventricle. The loss of blood was very considerable even then, but the insertion of each suture was observed to act as a very immediate stimulus, and after the insertion of the first row, when the heart's action had become very feeble, the insertion of the second superficial layer of sutures stimulated its action so that it became more regular and forcible. In view of the enormous loss of blood, it was remarkable that there was so little collapse; there was, further, no air-hunger or delirium, though symptoms of cerebral anæmia were, so far as possible, averted by keeping the foot of the bed well raised. The patient recovered consciousness within half an hour of being put to bed and was conscious and rational throughout. The severe injury to the pericardium again, though inducing excessive secretion of pericardial fluid, was accompanied by no symptoms, owing to the free drainage afforded to the sac by the incomplete closure of the wound in it. The cause of death was apparently failure of the heart's action due to the pressure of the clot slowly forming on its anterior surface, which also blocked the pericardial wound and prevented the escape of the blood oozing from the gap in the wound in the heart and not directly due to the slight secondary hæmorrhage.

In conclusion, I wish to say that I am much indebted to Dr. Joseph Ward, house surgeon to the hospital, for his assistance in keeping the notes of the case and for his constant attention to the patient during the 11 days he survived the accident.

Maidstone.

A STUDY OF THE STREPTOCOCCI PATHOGENIC FOR MAN.

BY F. W. ANDREWES, M.D. OXON., F.R.C.P. LOND.,
PATHOLOGIST TO, AND LECTURER ON PATHOLOGY AT, ST BARTHOLOMEW'S HOSPITAL, LONDON,

AND

T. J. HORDER, M.D. LOND., F.R.C.P. LOND.,
MEDICAL REGISTRAR AND DEMONSTRATOR OF MORBID ANATOMY AT ST. BARTHOLOMEW'S HOSPITAL, LONDON; PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL, LONDON.

I. INTRODUCTION; DIFFICULTIES IN CLASSIFYING STREPTOCOCCI; GORDON'S METABOLIC TESTS.

ALMOST from the time when streptococci were first shown to be connected with certain morbid conditions in man the problem of the identity or non-identity of the types found in different diseases has been actively discussed. One of the earliest disputes concerned the relationship between Fehleisen's streptococcus of erysipelas and that found by Rosenbach in acute suppurations and named by him streptococcus pyogenes. It is now generally conceded that the two organisms are identical, representing at most two differing phases of virulence. In recent years the innumerable bacteriological investigations which have been carried out upon diseased conditions of every kind have shown that streptococci are associated with a large number of acute and chronic inflammatory affections and blood infections, so that to-day they are justly regarded as amongst the most important of pathogenic bacteria. This advance in our knowledge of their importance and commonness in the production of disease has not, however, been associated with any corresponding advance in our power of discriminating between the different varieties of streptococci concerned. With the introduction of serum-therapy the problem has entered upon a more acute phase. Anti-streptococcal serum occasionally works miracles but is more often without effect of any kind, and it has been suggested that one reason for this may be that there are various species of streptococci at work, and that the miracle comes off when by chance the serum has been produced by immunisation with the same organism as happens to be the cause of the disease. The need for some means of discriminating between the different sorts of streptococci has become greater than ever.

Some pathologists, notably Marmorek, to whom we owe the introduction of anti-streptococcal serum, have stoutly maintained the unity of all the streptococci pathogenic for man. Marmorek based his chief argument upon the facts that bouillon in which one sort of streptococcus has grown is incapable of serving as a culture-medium for any other sort and that all alike show similar hæmolytic power. The general demand for a multivalent serum shows that this view has not gained wide credence amongst the medical profession.

There have hitherto been no satisfactory criteria for judging of the specific characters of the various streptococci occurring in disease. Morphology has proved of little value. The size of the individual cocci varies too little to be of service. More hopeful is the length of the chains formed. In 1891 von Lingelsheim proposed a division into two groups based on this criterion; he suggested the terms "streptococcus brevis" for the short-chained forms rendering broth uniformly turbid and for the most part the post-mortem examination and suffered from a very severe lymphangitis and local suppuration which under prompt treatment with univalent pyogenes serum and free incision ran a favourable course. The pus from his wound yielded a streptococcus which fermented saccharose, lactose, and salicin, but now the saccharose was more vigorously attacked than the lactose. The organism was inoculated into a mouse which succumbed in three days. The streptococcus recovered from the mouse fermented saccharose, lactose, and salicin equally well and proved a typical streptococcus pyogenes. Cases such as this are particularly instructive, showing that even such cardinal reactions as those with the di-saccharides may vary somewhat with varying degrees of virulence. 5. We have the tested reactions under varying external conditions. It seems to us probable that slight differences in the composition of the medium may possibly affect the series of reactions to some little extent. And it is clear that free access of oxygen may have an important influence. In one case a streptococcus which appeared certainly to be an example of streptococcus pyogenes altogether refused to attack lactose under aerobic conditions. But on the exclusion of oxygen lactose was readily fermented—i.e., the need for increased chemical activity under anaerobic conditions seemed to evoke a latent power in the coccus. We have not done sufficient work on this branch of the subject to justify us in making any precise statements as to the influence of anaerobic conditions in modifying Gordon's tests, though it would be a matter well worthy of investigation. The neutral red test has no value at all unless it is carried out anaerobically. We would repeat that, despite the instances to the contrary which we have adduced, the constancy of the reactions for any given strain of streptococcus is on the whole remarkable.

We now pass to the second method by which a judgment may be formed as to the value of Gordon's tests—namely, the correspondence between differences revealed by them and differences of other kinds, such as distribution in nature, pathogenesis, and other biological characters. From the critical point of view this consideration is of even greater moment than the constancy of the reactions. In order to gain the necessary data for forming an opinion on this subject one of us (F. W. A.) undertook the correlation of all the published records obtainable in which streptococci had been tested by Gordon's methods. These are now sufficiently numerous to form a fair basis for criticism. The normal flora of the mouth is represented by Gordon's 300 strains and that of the intestine by Houston's 300. There are also Houston's 172 colonies from milk and more than 200 from air tested by Gordon and published in his report on the Ventilation of the House of Commons (1906). Gordon had examined some 20 pathogenic species and we ourselves have raised that number to over 200. Further, one of us had examined a goodly number of strains from fresh air, sewer air, sewage, milk, and the intestines of herbivorous and carnivorous animals. Altogether there were more than 1200 records of colonies tested. These were entered on suitable printed charts and were then sorted and arranged, so far as might be, into groups and sub-groups. In this way a tentative classification was reached, based upon the metabolic tests, and a broad, general survey of the matter was for the first time possible. At the first glance the results of this laborious correlation were somewhat disheartening. The number of chemical types was bewildering; they were connected by innumerable transitional forms and no clue existed as to which tests were fundamental and which subsidiary, though it was already apparent that some (e.g. the salicin and neutral red tests) were more variable than others. There was, however, one guide which, as in all such taxonomic problems, proved of the greatest help—namely, the numerical frequency of occurrence of any given type. When any arbitrary set of characters is taken as a basis for the classification of a group of natural objects the same phenomena are usually seen—large groups of like objects connected by small groups which differ from them in only one or two particulars. If the numerical frequency of each individual like group is represented by the proportional height of a vertical line and the lines are arranged in series the commoner types stand out boldly above the rarer ones. Only in nature they are plotted out, not in linear series, but in space of two dimensions, as it were, so that the common types stand out as mountain tops above their fellows, each mountain connected by valleys of intermediate types with many of its neighbours. If now the mountains were cut off by a horizontal plane half way up their sides and attention were paid only to the mountain tops, disregarding the valleys, we should have the popular conception of species. The biologist, on the contrary, is more concerned with the intermediate types in the valleys, as illustrating variation and the connexion between allied species. In some groups of plants and animals the mountains are few and high and the valleys very deep. These are the groups which are, so to speak, in a stationary condition—which are not rapidly varying and adapting themselves to new conditions. In other groups, which biologists call "dominant genera," the mountain tops are numerous but not so high and separated by only shallow valleys; these are the groups which are at the moment succeeding in the struggle for existence. We believe that the streptococci are such a group.

Applying the above conception to the streptococci as differentiated by Gordon's test, some sort of law and order is at once introduced into the maze of chemical types, so that they begin to fall into a relatively small number of predominant groups connected by many intermediate forms. A clue is thus afforded as to which are the more and which the less important of the individual tests, though we must confess that no one test has appeared to us infallible. Help is also given by other biological characters, such as length of chain, pathogenesis, hæmolytic power, ability to grow at 20° C., and capacity for resisting desiccation.

III. PROPOSED CLASSIFICATION OF STREPTOCOCCI BASED UPON ALL CHARACTERS AND INCLUDING GORDON'S TESTS.

Taking all these conditions into account the classification of the streptococci became much clearer. We do not propose to enter here in detail into the large question of their general classification but we will state the general conclusions to which the study of the 1200 or so individual colonies has led us. Before doing so we will quote in detail the facts as to one small group of streptococci as an illustration of the chemical variations which may exist within the limits of what is almost certainly a single species, though not a pathogenic one. By far the commonest streptococci in the air of London are forms with chains of medium length, incapable or barely capable of growth at 20° C., forming little or no acid in milk, and quite incapable of fermenting lactose. The positive tests in Gordon's series are saccharose and the two glucosides (salicin and coniferin). Gordon had met with these forms in great abundance in air and one of us (F. W. A.) had also found them the commonest air streptococci in some investigations at Hampstead. They correspond with none of the ordinary human saprophytic streptococci, and the most likely source for them seemed to be the horsedung which forms so large a part of the organic contamination of London air. This view proved correct. On examining fresh horsedung it was found that streptococci were present to the number of 10 million per gramme, far exceeding all other bacteria in numerical abundance, and that these particular air streptococci were the chief sort present, other varieties being present only up to 100,000 per gramme. Further, these forms proved remarkably resistant to desiccation, withstanding drying on garnets for several months. It was thus reasonably certain that this form of streptococcus, which seems entitled to rank as a species, was usually derived from horsedung, or perhaps also from the intestines of other herbivora; it was not found in the intestine of certain carnivora examined (the fox and the stoat). Now the chemical reactions of individual strains, though constant on subculture, varied within certain limits. Most frequently both saccharose and the two glucosides were fermented, but often one or more of the reactions was suppressed. The variations are shown in the following table.

TABLE I.

—	Reactions with Gordon's nine tests.									Frequency in 94 air colonies.	Frequency in 13 horse-dung colonies.
	Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Coniferin.	Mannite.		
1	·	·	+	·	·	·	·	·	·	7	0
2	·	·	+	·	·	·	+	·	·	18	4
3	·	·	+	·	·	·	·	+	·	1	0
4	·	·	+	·	·	·	+	+	·	36	3
5	·	·	·	·	·	·	+	+	·	25	5
6	·	·	·	·	·	·	+	·	·	6	1

man. Dr. A. C. Houston applied Gordon's tests (excluding the coniferin test) to 300 streptococci from normal human fæces and found that they fell under 40 different chemical types. His results are contained in a paper in the same volume of the *Local Government Board Reports* as the paper by Gordon just alluded to. He has since published in a report to the London County Council on the Bacteriology of Milk the results of Gordon's tests as applied to 172 strains of streptococci from milk. More than two years ago we began to apply these tests to all streptococci which we could procure from human sources in disease, limiting ourselves to those cases in which there was a reasonable presumption that the streptococcus had a direct or secondary connexion with the disease process. We included the pneumococci in this inquiry, regarding them as members of the streptococcal group. We have now examined considerably over 200 strains of streptococci and pneumococci from human disease-processes, and we consider that we have accumulated sufficient material to warrant us in putting our conclusions before the medical profession. We propose in the first place to offer our criticisms upon Gordon's tests as a whole and to state the value which we have been led to place upon them, and secondly, to tabulate our detailed results as a contribution to the classification of the streptococci pathogenic for man.

II. General Criticism of Gordon's Tests and of the Conception of "Species" amongst Bacteria.

We have already shown how other criteria fail to discriminate sharply between various strains of streptococci. This defect cannot well be urged against the series of metabolic tests which Gordon has devised. The error here is in the contrary direction, and there is no little danger that by a blind insistence on the importance of this or that individual chemical test we may tumble into the pitfall of unwarranted species-mongering. Gordon himself has been careful to abstain from claiming specific value for his different chemical types, but he has not ventured to propose any reasoned scheme of scientific classification based upon his tests. The tests are to a large extent empirical and arbitrary and the groups into which his 300 salivary streptococci fall remind one of the Linnæan system in botany. Had he employed 20 tests instead of nine it is probable that instead of 48 he would have found 100 or more varieties amongst them. It cannot too strongly be insisted that in classifying bacteria attention must be directed to the sum total of biological characters. The difficulty lies in deciding which of the chemical tests are to be regarded as fundamental and which of subsidiary importance. It is clear that they impose upon the organisms subjected to them a set of gymnastic exercises in chemical decomposition which are of varying difficulty. The monosaccharides are too easily broken up to serve as a test at all. The disaccharides, saccharose and lactose, are somewhat more difficult to deal with but offer a relatively easy task, for they are far more frequently attacked than any of the other bodies in Gordon's series; more than 90 per cent. of the pathogenic streptococci can utilise these disaccharides as food. The trisaccharide, raffinose, is a much harder nut to crack and only 21 per cent. of the pathogenic streptococci can attack it with success, while only 3 per cent. of the group can ferment the polysaccharide, inulin. The pneumococci, on the contrary, readily attack raffinose (74 per cent. of those we have investigated) and some 25 per cent. of our pneumococci have been able to attack inulin. The glucosides, salicin and coniferin, are more readily decomposed by streptococci than the higher carbohydrates. No less than 73 per cent. of the pathogenic forms attack salicin, while coniferin is broken up by 28 per cent. The polyatomic alcohol, mannite or mannitol, has been fermented by 21 per cent. of our pathogenic series. As regards the two remaining tests milk has been clotted by 34 per cent. and neutral red reduced by 24 per cent. of our series.

Precisely how the cocci chemically attack the test bodies is at present a matter of conjecture, but we shall probably be near the truth if we assume it to be by the production of specific enzymes which perhaps break up the more complex carbohydrates and glucosides into the simpler monosaccharides; these may then be split up by an enzyme common to the whole group. We have endeavoured to judge of the value of Gordon's tests in two ways. In the first place we have repeatedly tested given strains as to the constancy of the reactions displayed, and in the second place we have carefully considered how far differences revealed by the tests are associated with other differences, such as may be shown by cultural and other biological characters, by pathogenic powers, and by distribution in nature.

The constancy of the tests is clearly a cardinal point; unless they can be shown to be reasonably constant their value breaks down at the outset. We have no hesitation in asserting that the reactions are remarkably constant for any given strain of streptococcus, and though we shall have to lay stress on certain exceptions to this rule it will only be for the purpose of discussing the relative value of the different tests in any scheme of classification which may be based on them. This constancy has been tested in several ways. 1. Several different colonies from the original culture have been simultaneously tested. In almost every case the results have been identical, though occasionally the salicin reaction has been at fault in this respect. The chief exceptions have been cases such as perforative peritonitis, in which it is reasonable to suppose that several varieties of the rich flora of the gut have simultaneously escaped into the peritoneum, or such as tonsillitis, where an analogous explanation holds good. 2. Cases have been compared in which it was reasonably certain that different patients had been infected from the same source. Opportunities for such observations are necessarily uncommon but we may quote two instances. A woman was admitted to hospital suffering from puerperal septicæmia, from which she died. From the heart's blood and from the uterus a streptococcus was cultivated which gave positive reactions with saccharose, lactose, salicin, and mannite. Three days later the infant which she had borne succumbed to erysipelas and pyæmia, and from th pus in its wrist-joint a streptococcus was isolated in pur culture, giving reactions identical with those of the materna organism. Again, two children died in hospital within few days of one another, the one from septicæmia associate with cellulitis of the neck and the other from septicæmi associated with a gastro-enteritis due to Gärtner's bacillus I each case a pure culture of a streptococcus was isolated fron the heart's blood, giving the same reactions as those of th mother and child just quoted, and in each case the mannit reaction was lost after a week's subculture on gelatin. I so happened that one of us had tested one case and one th other, and when we came to compare notes, struck by the corresponding loss of the mannite reaction, we discovered that the two patients were brothers, admitted to the hospital during the same week, the one to a medical and the other to a surgical ward. These instances gain in force from the fact that the streptococcus in question is by no means one of the commonest types met with in disease. We regard it, as will appear later, as a variety of streptococcus pyogenes. 3. The tests have been repeated after prolonged subculture, in some cases extending over a year. Here again the results are singularly constant and exceptions are infrequent. One example must suffice. There is a form of intestinal streptococcus growing in short chains, reacting positively to all of Gordon's tests, except raffinose and inulin, and possessing the power of rapidly liquefying gelatin: it is not pathogenic. An old culture left in the incubator for nine months was recently revivified and showed all the old reactions unchanged, including liquefaction of the gelatin. We could give other instances of this pertinacity of type. Nevertheless we must record other cases in which slight differences have been noted. We have already alluded to two cases in which the mannite reaction was speedily lost; in other instances reactions with salicin and neutral red have been both lost and gained; these two latter tests seem indeed more liable to vary than most of the others. 4. We have repeatedly tested the reactions of pathogenic streptococci before and after passage through the mouse, and we can confirm Gordon's statement that the reactions are almost invariably unchanged, though we have once or twice found the salicin reaction to vary. We have on one occasion pursued the same streptococcus through a series of infections. A woman died in hospital from a septicæmia secondary to ulcerative stomatitis. From the blood during life a streptococcus was isolated which grew well on gelatin at 20° C., failed to clot milk, and readily attacked lactose and salicin. It gave a feeble saccharose reaction and by the ninth day (a point far beyond that to which most of our observations extend) coniferin and mannite gave also an acid reaction. From the heart's blood post mortem and from the pus in a knee-joint a streptococcus was grown in pure culture which gave the same reactions. The saccharose reaction was feeble and on this occasion no reactions occurred with coniferin and mannite by the seventh day. One of us (T. J. H.) had the misfortune to prick his finger at reactions are saccharose, lactose, and raffinose, the last-named less constantly than the first two. The glucoside reactions may be added, and rarely inulin.

Streptococcus salivarius is related in many ways to the pneumococci, which may prove to be a pathogenic offshoot from it. It is possible that some of Gordon's specimens from saliva were really pneumococci, but he paid no attention to the question of capsules. Streptococcus salivarius, however, is certainly not identical with the pneumococcus, being for the most part non-pathogenic; the pneumococcus, moreover, very rarely reduces neutral red.

E. This is the pathogenic long-chained form of streptococcus salivarius, and seems to have a special connexion with inflammation of the fauces and with scarlet fever. If, as some maintain, the cause of scarlet fever is a streptococcus, the particular sort of streptococcus is probably to be found within the limits of this group. Our data as regards scarlet fever will be given later and will be found far from conclusive. Meanwhile, since this particular type of streptococcus occurs in other sore-throats, and indeed in the normal alimentary canal, as well as (less commonly) in other diseased conditions, we would suggest the term "*streptococcus anginosus*" as not inapplicable to it.

The characters of streptococcus anginosus are as follows. It is a long-chained form, producing in broth a flocculent deposit like that of streptococcus pyogenes. The differences between it and pyogenes are that, more often than not, it will not grow on gelatin at 20° C., that it is only rarely associated with suppuration, and that it habitually clots milk and reduces neutral red. Nevertheless, a number of its variants fail to clot milk and form transitions to streptococcus pyogenes. We cannot draw a hard and fast line between the two. Like pyogenes, it is markedly hæmolytic. In its chemical reactions it is practically indistinguishable from streptococcus salivarius. The type-reactions are: clotting of milk, reduction of neutral red, and acid formation with saccharose and lactose, to which raffinose is often added. Other variants include the glucosides and in rare cases inulin. This long-chained form is recorded 32 times from the normal throat and intestine and has also been found in the intestine of both carnivora and herbivora. We have met with it 16 times in ordinary diseases and 23 times in disease processes (principally scarlet fever) where we could not feel certain that it was the causal agent.

F. There is a group of streptococci so characteristic of the human intestine that the term "*streptococcus fæcalis*" may justly be applied to it. It is mostly short-chained, rendering broth uniformly turbid, but in disease, at least, forms with long to medium chains occur. It grows readily on gelatin at 20° C. with rare exceptions and is distinguished by its great chemical activity. It forms H_2S in broth cultures but is totally devoid so far as our experiments go, of hæmolytic power. Its chemical powers are rapidly manifested and the typical intestinal form (40 specimens in Houston's 300) reacts positively to Gordon's tests in all cases save raffinose and inulin; even these may be added. A mannite reaction is constant but the variants are very numerous. There are records of 29. Even gelatin may be liquefied by some varieties of the typical form. The species possesses a very great resistance to desiccation, far greater than that of the long-chained throat forms. It is not pathogenic for rodents. This form is not found, according to Gordon, in normal saliva. He never once found a streptococcus fermenting mannite in the 300 colonies which he tested. The mannite test is probably not an absolute one and he found types resembling streptococcus fæcalis in all except this. Nevertheless it seems justifiable to assert that the mannite reaction is characteristic of a large number of intestinal as opposed to salivary streptococci. We have found this type on 13 occasions in disease processes, notably in cystitis, and we regard it as a facultative parasite.

G. There remain the *pneumococci*. We have tested 34 strains in the same way as we have tested the pathogenic streptococci. We have found many varieties, but with one exception we consider that they may all be referred to a single species The one exception is an isolated example only which will be mentioned later. The distinguishing mark of the pneumococci is the possession of a capsule when growing in the animal body and in certain culture media. On ordinary media this capsule is not apparent and the cocci frequently form chains of considerable length, so that there seems no justification for removing the pneumococci from the genus streptococcus.

A critical examination of the seven groups of streptococci above enumerated will at once reveal the fact that the grouping is arbitrary. The different kinds to which we have given names shade off into one another by imperceptible gradations and the view which we have adopted as to variants by suppression and by addition renders it frequently uncertain to which type a given form of streptococcus should be referred. We would meet such criticism in advance with the remark that this indefinite state of affairs actually represents the condition found in nature. We regard the streptococci as a "dominant genus" which has specially adapted itself to a saprophytic existence in the alimentary canal of man and animals. Under the favourable conditions there offered, the food-supply being abundant and highly varied, the genus has, as it were, specialised in metabolic powers so that a great variety of races has sprung up differing in their precise capacities for attacking different foodstuffs. Some of these races have prevailed numerically above their fellows and are on their way to become distinct species though still connected by transitional forms. Further, certain of them have begun to adapt themselves to a truly parasitic existence; some, such as streptococcus pyogenes, have done so with marked success and are already amongst the most formidable bacterial foes with which the body has to contend; others are mere facultative parasites of a much lower degree of virulence.

What we have done in our attempt to sort out the chemical types hitherto recorded has been to select those types which have thus prevailed numerically and to apply names which may serve to indicate them, not perhaps as well-defined species but as species in the making, already so distinct as to deserve special appellations. The less abundant intermediate forms have been fitted in, as well as might be, as variants of the more prominent forms. It is probable that in the present state of our knowledge no more sharply defined classification of the streptococci is possible and that the scheme above outlined fairly represents the actual medley of types seen in nature, and the way in which, by the processes of evolution, nature herself is sorting out the medley. A certain element of arbitrariness is inevitable in any attempt of the kind. Whether the precise criteria we have selected are the best and most fundamental is another matter; we can only plead that we have done our best to introduce some sort of order into what has hitherto been a perplexing maze, and we venture to believe that some such conception of the streptococci as we have set forth is preferable to the idea that they are all one kind or that they present a hopeless chaos.

Having thus set forth the results of the attempted correlation of the varied types of streptococci revealed by the application of Gordon's tests to the 1200 or so specimens recorded, a further criticism may be possible as to the value of those tests. We have shown that their constancy is sufficiently great to warrant reliance upon them. We consider that, in addition, the variations which these tests reveal correspond sufficiently with variations in other characters to make them the best available guide through the labyrinth of forms. We find that we can more readily "place" a streptococcus, and surmise its source and probable virulence, by the aid of Gordon's tests than in any other one way. These tests are capable of good and of bad use. We have given sufficient reason for the belief that in themselves they are too arbitrary for a systematic classification. Probably no one of the nine tests is of absolute and constant worth, while several are certainly of little value. Reliance on these tests alone must result in a purely empirical scheme of classification of little real scientific utility. But taken in conjunction with other characters the tests appear in a very different light and afford a clue to the nature of any given form of streptococcus which is invaluable. The introduction of these tests by Gordon is, in our judgment, the most important advance which has been made in recent years in the study of the streptococci.

(To be continued.)

BRIXHAM COTTAGE HOSPITAL.—Lord Churston is endeavouring to raise £5000 as an endowment for the cottage hospital at Brixham in Devonshire. The population of Brixham consists almost entirely of fishermen and their families, and the cottage hospital performs an admirable work in assisting the men employed in the large fishing fleet, of which Brixham is the headquarters, in cases of accident and sickness. Already over £600 have been promised as a commencement of the fund, and it is hoped that with an effort the full amount will be subscribed.

Here, then, are six different chemical types within the limits of what, on broad general grounds, must be regarded as a single species of streptococcus. No one of the reactions is constant, but the limitation of the *reactions to saccharose* and the glucosides is constant, and the specificity of the group *is emphasised by the absence of an acid reaction* in milk and by inability to grow on gelatin at 20° C. The type, as evidenced by numerical frequency, is clearly number 4. The variants are "variants by suppression" *of one or other reaction. It is probable that there exist* also "variants by addition," for a common air streptococcus shows an inulin reaction added to saccharose, salicin, and coniferin, and another less common one shows addition of both inulin and raffinose (the latter variant having been found once in horsedung). Further, there are closely allied forms which reduce neutral red. The series above adduced illustrates at once the strength and the weakness of Gordon's tests as a specific guide in classification. The weakness is plain when unsupported by other evidence, for a streptococcus giving, for instance, a positive reaction with saccharose only might equally well, as we shall show, be a pneumococcus or a virulent type of streptococcus pyogenes. And the strength is this, that a streptococcus from the mouth fermenting only saccharose, salicin, and coniferin, non-pathogenic, and incapable *of growth on* gelatin at 20° C., may with some confidence be referred to inhaled horse-dung. The series serves also to illustrate the principles of classification which have guided us in our *preliminary* attempts to group the streptococci according to their chemical properties.

Turning now to the 1200 or so specimens of streptococci which have been tabulated from all sources, saprophytes and parasites together, they may be roughly grouped as follows.

A. The saprophytic group above mentioned which seems derived from the herbivorous intestine and may be termed "*streptococcus equinus.*" Its characters have already been sufficiently described; so far as is known it is totally devoid of pathogenic properties. There are records of 152 specimens conforming to the main types (i.e., fermenting only saccharose and the glucosides), derived chiefly from air, dust, and horse-dung, but including 17 from human saliva, 23 from human fæces, and one from urine. The variants which in addition give reactions with raffinose and inulin number 95 specimens (45 from air and dust, and 50 from human fæces and saliva). Variants giving also a neutral red reaction number 29 specimens.

B. The second group is still essentially saprophytic, occurring chiefly in human saliva and fæces, but is occasionally associated with disease. It is a short-chained form capable of good growth on gelatin at 20° C., and it gives a *marked acid reaction in milk, though no clotting.* Further, it almost always ferments lactose. These characters fail to separate it very clearly from Type A, but they do not sharply define it from Type C, the true streptococcus *pyogenes. The only reasons which induce us to separate* Types B and C are that Type B is habitually short-chained and *non-pathogenic, and never associated with suppuration*, while Type C is habitually long-chained, virulent, and typically associated with suppurative processes, being found only occasionally as a saprophyte. These *differences are vague, and we are inclined to regard Type C* as a parasitic *form* which has been *evolved* from Type B and is not yet *sharply separated from it. Type B has been* found with almost equal frequency in saliva and in the intestinal contents. In 132 *specimens it has only nine times* been found associated with disease processes and only once or *twice* has there been *reason for regarding* it as *truly* pathogenic. Such forms may with fair propriety be regarded as variants *of Type D* in which the power of clotting milk has been suppressed. Some name must for convenience be given to this type and we would suggest "*streptococcus mitis*" as a non-committal term fairly expressing its habitually non-virulent character. It may be defined as a short-chained form, almost never pathogenic, inhabiting the human alimentary canal, *growing well* on gelatin at 20° C., not clotting milk but often reducing neutral red. Its typical positive reactions with *Gordon's tests* are saccharose and lactose with or without the glucosides. 58 specimens are recorded as of this *type*; *raffinose* or inulin reactions were also present in 10 further specimens and reduction of neutral red in 64 more. This saprophytic type is of chief interest as the probable form from which the virulent streptococcus pyogenes has arisen.

C. The third group is one of the utmost importance in human pathology, having as its type the classical organism first described by Fehleisen as "streptococcus erysipelatos," but *since* more generally known by Rosenbach's name, "*streptococcus pyogenes.*" We adhere to the latter term because, though Fehleisen's name has undoubted priority, this species does so much more than produce erysipelas that the wider term deserves to supplant the narrower. This type has assumed more definitely parasitic characters than any other sort of streptococcus and in its fully-developed form seems not to occur as a human saprophyte, though some of its variants have been met with in saliva and fæces. Its characters are as follows. It is a long-chained form usually growing in woolly masses at the bottom of a clear broth; occasionally the broth is somewhat turbid and the chains of only medium length. It grows vigorously on gelatin at 20° C. It is actively hæmolytic but does not form H_2S in broth culture. It strongly acidifies milk but never clots it, nor does it reduce neutral red (those allied forms which do so we refer to Type D; they commonly show other differential characters in *addition*). The usual *positive* reactions with Gordon's tests are saccharose, lactose, and salicin, but a variant lacking the salicin reaction is quite common. It is highly pathogenic for the mouse and rabbit, *somewhat less so for the guinea-pig*, though it often produces a local suppuration in this animal. When freshly isolated from a case of human disease it generally produces a fatal septicæmia in the mouse in two or three days. In its commonest form, *giving reactions* with *saccharose*, *lactose*, and salicin, it has been met with 33 times in human disease and *five times doubtfully associated* with *disease processes*, but never as a saprophyte except as a short-chained form (Type B). In one case, of a child suffering from an acute and rapidly fatal pharyngitis, an organism was obtained from the tonsil in almost pure culture which *in all respects* resembled the classical streptococcus pyogenes, save that it rapidly liquefied gelatin.

Any one of the three cardinal reactions may be suppressed, giving variants which we shall describe later in detail. Further, certain reactions may be added, notably mannite or coniferin, without any other change in the general characters of the type. (Variants also occur in which raffinose and inulin reactions are added, but we have some grounds for regarding these as modifications of Type D in which the power of clotting milk has become suppressed.) The variants by suppression and by addition of mannite and coniferin account for 38 cases in which the organism was definitely pathogenic and 15 in which it was otherwise associated with disease processes. 15 such variants are recorded from normal saliva and fæces.

D. There is a form of streptococcus so characteristic of the saliva, though it is also common in the intestine, that the term "*streptococcus salivarius*" may justly be applied to it. It is the form often spoken of as streptococcus brevis of the mouth, but so many other forms are also short-chained that some more distinctive appellation is needed. No less than 211 out of the 300 salivary streptococci studied by Gordon fall under the possible variants of this type and 105 out of Houston's 300 fæcal streptococci (i.e., it is proportionately twice as common in the mouth as in the intestine). Its variants pass by insensible gradations into those of the commonest intestinal form (Type F) which we describe as "streptococcus *fæcalis*," and we are unable to draw any absolute distinction between the two forms. Streptococcus salivarius, *even* in its short-chained form, plays no unimportant part in human pathology, and we have it *recorded* as pathogenic in 26 cases. But it appears to bear the same relation to the much more pathogenic long-chained form which we describe as Type E, that streptococcus mitis does to streptococcus pyogenes. There seems to be no distinction between them other than that the long chained forms are more highly pathogenic. Type E is really a parasitic form of Type D, but it is found much more frequently than streptococcus pyogenes as a saprophyte of the normal alimentary canal of man and animals.

The typical characters of streptococcus salivarius are as follows. It is a short-chained form which usually renders broth uniformly turbid, though sometimes the broth is clear with a deposit of short chains. It grows less constantly than Types B and C upon gelatin at 20° C. *Sometimes* it will grow, but often not. It clots milk almost always and in its typical form reduces neutral red, though variants occur which fail to do this. The characteristic fermentation reactions are saccharose, lactose, and raffinose, the last-named less constantly than the first two. The glucoside reactions may be added, and rarely inulin.

Streptococcus salivarius is related in many ways to the pneumococci, which may prove to be a pathogenic offshoot from it. It is possible that some of Gordon's specimens from saliva were really pneumococci, but he paid no attention to the question of capsules. Streptococcus sallivarius, however, is certainly not identical with the pneumococcus, being for the most part non-pathogenic; the pneumococcus, moreover, very rarely reduces neutral red.

E. This is the pathogenic long-chained form of streptococcus salivarius, and seems to have a special connexion with inflammation of the fauces and with scarlet fever. If, as some maintain, the cause of scarlet fever is a streptococcus, the particular sort of streptococcus is probably to be found within the limits of this group. Our data as regards scarlet fever will be given later and will be found far from conclusive. Meanwhile, since this particular type of streptococcus occurs in other sore-throats, and indeed in the normal alimentary canal, as well as (less commonly) in other diseased conditions, we would suggest the term "*streptococcus anginosus*" as not inapplicable to it.

The characters of streptococcus anginosus are as follows. It is a long-chained form, producing in broth a flocculent deposit like that of streptococcus pyogenes. The differences between it and pyogenes are that, more often than not, it will not grow on gelatin at 20° C., that it is only rarely associated with suppuration, and that it habitually clots milk and reduces neutral red. Nevertheless, a number of its variants fail to clot milk and form transitions to streptococcus pyogenes. We cannot draw a hard and fast line between the two. Like pyogenes, it is markedly hæmolytic. In its chemical reactions it is practically indistinguishable from streptococcus salivarius. The type-reactions are: clotting of milk, reduction of neutral red, and acid formation with saccharose and lactose, to which raffinose is often added. Other variants include the glucosides and in rare cases inulin. This long-chained form is recorded 32 times from the normal throat and intestine and has also been found in the intestine of both carnivora and herbivora. We have met with it 16 times in ordinary diseases and 38 times in disease processes (principally scarlet fever) where we could not feel certain that it was the causal agent.

F. There is a group of streptococci so characteristic of the human intestine that the term "*streptococcus fæcalis*" may justly be applied to it. It is mostly short-chained, rendering broth uniformly turbid, but in disease, at least, forms with long to medium chains occur. It grows readily on gelatin at 20° C. with rare exceptions and is distinguished by its great chemical activity. It forms H_2S in broth cultures but is totally devoid so far as our experiments go, of hæmolytic power. Its chemical powers are rapidly manifested and the typical intestinal *form* (40 specimens in Houston's 300) reacts positively to Gordon's tests in all cases save raffinose and inulin; even these may be added. A mannite reaction is constant but the variants are very numerous. There are records of 29. Even gelatin may be liquefied by some varieties of the typical form. The species possesses a very great resistance to desiccation, far greater than that of the long-chained throat forms. It is not pathogenic for rodents. This form is not found, according to Gordon, in normal saliva. He never once found a streptococcus fermenting mannite in the 300 colonies which he tested. The mannite test is probably not an absolute one and he found types resembling streptococcus fæcalis in all except this. Nevertheless it seems justifiable to assert that the mannite reaction is characteristic of a large number of intestinal as opposed to salivary streptococci. We have found this type on 13 occasions in disease processes, notably in cystitis, and we regard it as a facultative parasite.

G. There remain the *pneumococci*. We have tested 34 strains in the same way as we have tested the pathogenic streptococci. We have found many varieties, but with one exception we consider that they may all be referred to a single species. The one exception is an isolated example only which will be mentioned later. The distinguishing mark of the pneumococci is the possession of a capsule when growing in the animal body and in certain culture media. On ordinary media this capsule is not apparent and the cocci frequently form chains of considerable length, so that there seems no justification for removing the pneumococci from the genus streptococcus.

A critical examination of the seven groups of streptococci above enumerated will at once reveal the fact that the grouping is arbitrary. The different kinds to which we have given names shade off into one another by imperceptible gradations and the view which we have adopted as to variants by suppression and by addition renders it frequently uncertain to which type a given form of streptococcus should be referred. We would meet such criticism in advance with the remark that this indefinite state of affairs actually represents the condition found in nature. We regard the streptococci as a "dominant genus" which has specially adapted itself to a saprophytic existence in the alimentary canal of man and animals. Under the favourable conditions there offered, the food-supply being abundant and highly varied, the genus has, as it were, specialised in metabolic powers so that a great variety of races has sprung up differing in their precise capacities for attacking different foodstuffs. Some of these races have prevailed numerically above their fellows and are on their way to become distinct species though still connected by transitional forms. Further, certain of them have begun to adapt themselves to a truly parasitic existence; some, such as streptococcus pyogenes, have done so with marked success and are already amongst the most formidable bacterial foes with which the body has to contend; others are mere facultative parasites of a much lower degree of virulence.

What we have done in our attempt to sort out the chemical types hitherto recorded has been to select those types which have thus prevailed numerically and to apply names which may serve to indicate them, not perhaps as well-defined species but as species in the making, already so distinct as to deserve special appellations. The less abundant intermediate forms have been fitted in, as well as might be, as variants of the more prominent forms. It is probable that in the present state of our knowledge no more sharply defined classification of the streptococci is possible and that the scheme above outlined fairly represents the actual medley of types seen in nature, and the way in which, by the processes of evolution, nature herself is sorting out the medley. A certain element of arbitrariness is inevitable in any attempt of the kind. Whether the precise criteria we have selected are the best and most fundamental is another matter; we can only plead that we have done our best to introduce some sort of order into what has hitherto been a perplexing maze, and we venture to believe that some such conception of the streptococci as we have set forth is preferable to the idea that they are all one kind or that they present a hopeless chaos.

Having thus set forth the results of the attempted correlation of the varied types of streptococci revealed by the application of Gordon's tests to the 1200 or so specimens recorded, a further criticism may be possible as to the value of those tests. We have shown that their constancy is sufficiently great to warrant reliance upon them. We consider that, in addition, the variations which these tests reveal correspond sufficiently with variations in other characters to make them the best available guide through the labyrinth of forms. We find that we can more readily "place" a streptococcus, and surmise its source and probable virulence, by the aid of Gordon's tests than in any other one way. These tests are capable of good and of bad use. We have given sufficient reason for the belief that in themselves they are too arbitrary for a systematic classification. Probably no one of the nine tests is of absolute and constant worth, while several are certainly of little value. Reliance on these tests alone must result in a purely empirical scheme of classification of little real scientific utility. But taken in conjunction with other characters the tests appear in a very different light and afford a clue to the nature of any given form of streptococus which is invaluable. The introduction of these tests by Gordon is, in our judgment, the most important advance which has been made in recent years in the study of the streptococci.

(To be continued.)

BRIXHAM COTTAGE HOSPITAL.—Lord Churston is endeavouring to raise £5000 as an endowment for the cottage hospital at Brixham in Devonshire. The population of Brixham consists almost entirely of fishermen and their families, and the cottage hospital performs an admirable work in assisting the men employed in the large fishing fleet, of which Brixham is the headquarters, in cases of accident and sickness. Already over £800 have been promised as a commencement of the fund, and it is hoped that with an effort the full amount will be subscribed.

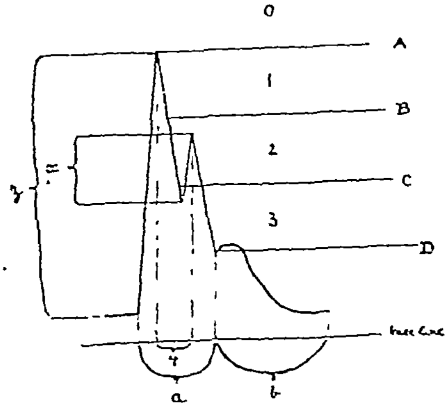
THE PULSE IN AORTIC DISEASE; THE RELATION OF PULSE CURVES TO BLOOD PRESSURE.

BY THOMAS LEWIS, M.B., B.S LOND., M.R.C.S. ENG., L.R.C.P. LOND.,

LATE HOUSE PHYSICIAN, UNIVERSITY COLLEGE HOSPITAL.

An analysis of the pulse curves of 20 cases of aortic regurgitation.—Careful notes were taken of 20 cases of aortic insufficiency. The cases were not selected, but were taken in rotation as they were admitted to hospital. They were examined and the pulse tracings were taken in the majority of cases within two days of admission, when the patients were settled, but before they were under the influence of drugs other than diuretics and purgatives. Most of the physical signs were checked by competent observers; the blood pressures given are average pressures of six or more observations taken for the most part between the hours of 10 A.M. and 12 noon, and at the same time as the tracings. The figures of the pulse analysis are the result of careful measurements and are each an average of five or more analyses from one or more tracings from each radial artery. The chief clinical features are given on the left of the accompanying table. It will be seen that in the majority of the cases they were those of considerable aortic incompetence, that two cases associated had mitral stenosis, and that ten others had mitral regurgitation to a lesser or greater extent. Cases presenting marked signs of aortic stenosis do not occur in the list. Some, no doubt, had a certain degree of stenosis but in no case did the physical signs indicate that it was a prominent feature of the case. Post-mortem examinations were obtained in Cases 6 and 17. Certain lettering and figuring in the table require explanation. Under "sclerosis of arteries," the signs, 0, S, S +, and S + +, indicate normal, slightly sclerosed, sclerosed, and extremely sclerosed vessels respectively. Under "pulsus bisferiens" + signifies its recognition by palpation, ⊕ indicates its presence in marked degree. Under the instrumental analysis the description is divided into systolic and diastolic phases. Referring to Fig. 1, the intervals *a* and *b* are the lengths of systolic and diastolic phases respectively. The "depth of the first notch," x, is given in its relation to the height of the primary wave z. The "second peak position" is given in the table, according to the position of its apex in relation to the equidistant lines A, B, C, and D, where A is drawn through the apex of the primary wave and D through the bottom of the dicrotic notch. In the figure given it falls in the position 2 When the apex falls in the position 0 the pulse is anacrotic When it falls on one of the lines A, B, C, or D it is indicated thus, $\frac{1}{2}$ or $\frac{2}{3}$. The distance separating primary and first secondary wave is given as the distance y, in seconds.

FIG. 1.



The chief points of interest in the table are as follows: 1. 14 cases, of an average age 36·8 years, showed an average systolic blood pressure of 132 mm. Hg (cp Janeway, p. 195). These were cases unassociated with signs of granular kidney. 2. Four cases, with signs of chronic interstitial nephritis and of average age 46 years, showed an average systolic blood pressure of 163 mm. Hg (cp. Janeway, pp. 195 and 169). 3 There was no definite relationship between the height of blood pressure and the amount of arterio-sclerosis (cp. Janeway, p. 185). 4. There was no relationship between the height of blood pressure and the state of compensation (cp. Janeway, p. 199). 5. There were, as would be expected, definite relationships between the amount of sclerosis and the age of the individual and etiology of the case. (Rr = recent rheumatism, So = syphilis of old standing.) 6. With careful palpation a pulsus bisferiens was palpable in 13 cases out of 20, and easily palpable in three cases. It was not palpable where the interval between primary and first secondary waves was less than one-tenth of a second, and not palpable when this interval exceeded one tenth of a second, if the depth of the first notch was limited. 7. There was a definite relationship between the height of the first secondary wave and the amount of arterio-sclerosis. The greater the sclerosis the higher the wave. There was no relationship between the height of the wave and the height of blood pressure and state of compensation. (When the wave occupied position 0 or 1 the pulse felt flat topped; when it occupied position 3 it felt collapsing.) 8 As a rule, though not invariably, the better the compensation the closer were the primary and first secondary wave, and the more shallow was the bisferiens notch (cp Steell). 9. The average duration of systole[1] was 0·38 second, the average duration of diastole was 0·48 second; there was no definite relationship between the two and the relationship was of no prognostic significance (cp. Chapman and Allbutt). 10. A dicrotic notch was present in all cases; in nine cases it appeared normal, in six cases exaggerated, in five cases diminished. In height it showed no definite relationship to the amount of regurgitation (Case 17 in particular), to the height of blood pressure, to the amount of arterio-sclerosis, or the degree of compensation. Neither did it demonstrate any relation to the length of systole, but there was some relation between it and the depth of the bisferiens notch, though this was not constant. 11. In 18 out of 20 cases the two pulse tracings were identical. Of the remaining two, one (Case 6) showed a more prominent pulsus bisferiens on the left side; the other (Case 15) showed it more prominently on the right[2] 12 One case out of 20 showed an anacrotic pulse (Case 2), but only on admission, and on admission compensation was poor; the patient's age was 68 years and he presented signs of extreme arterio-sclerosis and granular kidney.

Types of pulse curves in aortic disease.—The types of tracing met with in aortic stenosis have been fully discussed by many writers, notably by Marey, Mahomed, and Steell. Originally anacrotism was considered to be pathognomonic of the condition; later this type was found in association with numerous other conditions. The pulsus bisferiens was also found in stenotic cases More observations led to the conclusion that neither type is pathognomonic for both may be found apart from stenosis (cp. Steell, &c.). The more recent observers associate anacrotism, combined with low blood pressure, with marked stenosis, and this combination has been confirmed in these investigations by two cases in which the signs were definite; the blood pressures were 110 and 115 respectively

Sansom describes three types of curve met with in cases of regurgitation: (1) curves with large amplitude of upstroke, usually having the dicrotic small and situated low down; (2) anacrotic types, associated with stenosis or renal disease; and (3) normal tracings The second, he states, is of unfavourable prognostic significance, the third of good It is impossible to divide, and indeed it appears inadvisable to attempt to divide, the types into classes. Every intermediate type exists and every combination of them It seems better to describe the main features of these curves and the conclusions which can be drawn from them. In a paper by Galabin on the "water-hammer" pulse emphasis

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[1] It must not be forgotten that this figure does not include the presphygmic interval (cp Keyt)

[2] W. Broadbent attempted to show that these differences on the two sides are due to the arrangement of the aorta and its branches; in his experience the pulsus bisferiens is generally more marked on the one side This is not the experience of other writers Morison attributes the difference to a difference in longitudinal tension in the vessel investigated, due to the position of the limb The view is not confirmed by these investigations, though it is true that the pulsus bisferiens is better marked with the wrist extended. (Cp. Lewis, Practitioner, 1906.

			H.A.B.							Aortic signs.							Palpation.		Instrumental.							
																			Arterial systole.					Arterial diastole.		
Case.	Sex and age.	Etiology.	Rib space.	Inches from mid line.	Character.	Epigastric pulsation.	Sclerosis of arteries.	Kidneys.	Blood pressure.	Basal murmur.	Second sound.	Duroziez murmur.	Thrill.	Aneurysm.	Mitral murmur.	Compensation.	Water-hammer.	Pulsus bisferiens.	Upstroke, sudden or normal.	Second peak position, 0, 1, 2, 3.	Distance between first and second wave in seconds.	Depth of first notch.	Length of systole in seconds.	Length of diastole in seconds.	Amount of dicrotic.	Difference in right and left pulse.
1	F., 64	?	6	6½	Heaving	+	S+	Nil.	135	D.	0	0	0	+	Nil.	Good.	+	+	S	1	0·14	1/8	0·46	0·48	N	Identical.
2	M., 68	So	6	5½	Forcible.	+	S++	Alb. Poly. U.	160	S. D.	0	+ Cap. pulse.	0	0	S slight.	Fair.	+	+	S	(0 on admission) 1	0·14	1/5	0·46	1·2	N	"
3	M., 20	S & R	5	3	Indistinct.	+	S	Nil.	130	S.D.	0	+ Cap. pulse.	0	0	S	Poor.	+	0	S	2	0·14	1/10	0·42	0·33	−	"
4	M., 40	So ?	6	6	Wavy.		S+	Alb. Poly. U.	165	S.D.	0	0	0	0	Nil.	"	+	(?)	S	2	0·18	1/5	0·41	0·41	N	"
5	F., 26	Rr	5	6	Forcible.	+	S	Nil.	130	S.D.	0	+ Cap. pulse	0	0	S	"	+	+	S	2/3	0·18	1/6	0·42	0·48	+	"
6	M., 30	Strain ?	5-7	6	Wavy but strong.	+	S+	"	130	D.	0	+ Cap. pulse	0	0	S	Bad	+	(?)	S	L. 1, R. ?	0·24	1/3	0·42	0·33	+	Pulsus bisferiens more marked on left side.
7	M., 57	So	5	4½	Heaving	+	S++	"	135	S.D.	Present.	+ Cap. pulse.	0	0	Nil.	Good.	+	0	S	1	0·14	1/16	0·33	0·52	N	Identical.
8	M., 50	So	6	6½	"	+	S+	"	140	S.D.	0	+ Cap. pulse.	0	?	S	Poor.	+	0	S	½	0·09	1/8	0·18	0·20	−	"
9	M., 51	Ro	6	4	"	0	S+	?	?	S D.	0	+ Cap. pulse.	0	?	Nil.	Fair.	+	0	S	1	0·09	1/8	0·24	0·52	N	"
10	M., 61	S & Ro	6-7	6	Forcible	+	S+	Alb. Poly. U.	160	S.D.	0	+ Cap. pulse	0	?	S slight.	Poor.	+	+	S	1	0·14	1/10	0·53	0·58	Very slight	"
11	F., 11	Rr	7	6	Heaving	+	0	Nil.	130	S.D.	0	0 Cap. pulse.	0	0	D. & S.	Good.	+	+	S	3	0·14	1/10	0·37	0·33	N	"
12	M., 21	Rr	6	6	Feeble.	0	0	"	130	S D.	0	+ Cap. pulse.	0	0	S	Poor.	+	(?)	S	3	0·18	1/5	0·38	0·46	N	"
13	M., 50	Ro	4-7	7	Wavy.	+	S	"	135	S D.	0	+ Cap. pulse	0	0	D. & S.	"	+	+	S	2	0·14	1/5	0·37	0·46	+	"
14	M., 25	So	6-7	5	Forcible	+	S+	Alb. Poly. U.	160	S.D.	0	0 Cap. pulse.	0	0	S	Fair.	+	+	S	2	0·14	1/10	0·43	0·52	−	"
15	M., 48	? Injury.	5	4	Heaving	+	S+	?	?	S.D.	0	0 Cap. pulse.	0	?	S	"	+	+	S	2	0·14	1/5	0·36	0·33	+	Pulsus bisferiens more marked on right side.
16	M., 28	?	5	4	Heaving	0	S	Nil.	130	S.D.	Present.	0	0	?	Nil.	"	0	0	N	2	0·14	1/6	0·37	0·46	+	Identical.
17	F., 37	R Malignant.	5	4½	Feeble.	0	S	"	140	S.D.	0	0 Cap. pulse	0	0	"	Bad.	+	+	S	2	0·18	1/6	0·37	0·42	+	"
18	M., 14	R	5	4	Heaving	0	0	"	115	S.D.	0	0 Cap pulse.	0	0	S. & (?) D.	Good.	+	0	S	3	0·14	1/10	0·30	0·24	N	"
19	M., 61	Ro	7	6	"	+	S		140	S.D.	0	0	0	0	Nil.	Fair.	+	+	S	2	0·14	1/4	0·42	0·62	N	"
20	M., 30	Ro	6	5	"	0	S	"	130	S.D.	0	0 Cap pulse	0	0	S slight.	Good.	+	0	S	3	0·09	1/20	0·36	0·58	−	"

REMARKS.

CASE 2.—Pulse anacrotic on admission; lost this character in two days.

CASE 4.—Some doubt as to condition of this man's kidneys.

CASE 5.—? Mitral stenosis also.

CASE 6.—Post mortem heart weighed 32 ounces; aorta dilated; muscle substance firm; aorta, chiefly regurg.

CASE 8.—Died shortly after leaving hospital. No necropsy!

CASE 17.—Necropsy. Malignant endocarditis. No trace of aortic valves. Heart weighed 18 ounces.

CASE 18.—? Mitral stenosis also.

was laid on the abrupt primary upstroke (cp. Corrigan). It was shown by him that this feature is the most constant in curves of aortic incompetence and it is referred to by all writers. The abruptness of the upstroke is due to the sudden change from a low diastolic to a high systolic pressure, but it is probable that this character is present in many other conditions, notably high tension of cardiac origin with rapid outflow. Anacrotism has been mentioned already; apart from stenosis it is not commonly met with in aortic disease. In the one case (No. 2) of the 20 tabulated it was only temporary and associated with poor compensation, high blood pressure, and granular kidney (Fig. 2). It was also a feature in the tracings of Case 13 on his second admission, but was present for one day only. The evidence is consequently in support of Sansom's view that it is a sign of failing compensation and has a bad prognostic significance. The height of the first secondary wave has been shown to depend on the condition of the vessel wall. For this reason the anacrotic type should be found where sclerosis is marked (as in Case 2). Four tracings (Figs. 2, 3, 6, and 8) are given, illustrating the height of the second wave, and two others (Figs. 5 and 7) illustrating varying depth of the bisferiens notch. Tracings shown in Figs. 5 and 8 are from the same patient; the type shown in Fig. 5 remained for two days only, during which period the patient showed some heart irregularity.

FIG. 2 (CASE 2).

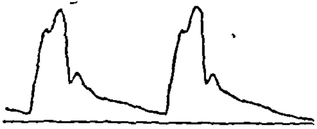
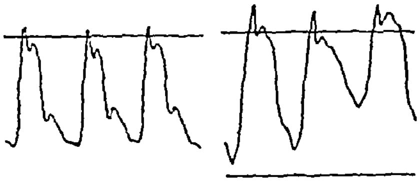


FIG. 3 (CASE 1).



In Fig. 3 a tracing from a thoracic aneurysm (of Case 1) is given (to the right); that to the left is from the radial. The change in the type of pulse during transmission is very slight. In Fig. 4 (Case 2) a very flat-topped type is shown, with the corresponding cardiogram to the right; the change in type during transmission is in this case remarkably small. Pulses of this type never feel collapsing to the finger, though they may be empty between the beats. A collapsing water-hammer pulse is shown in Fig. 8.

In the 20 cases referred to a somewhat inconstant relationship was found between the length of interval between the first and second waves and the prognosis. From these 20 cases and numerous other cases investigated I am inclined to associate the length of this interval with dilatation of the heart; it has never been found of any great length, except in patients with very large hearts (Fig. 7 is from Case 6 and Fig. 5 from Case 12.) As a rule, it is associated with depth of the bisferiens notch but by no means invariably (Fig. 8).

FIG. 4 (CASE 2).

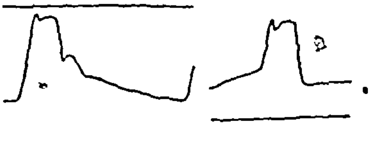


FIG. 5 (CASE 12).

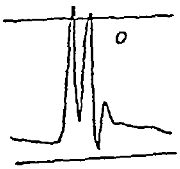
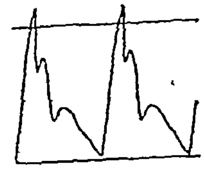


FIG. 6.



The subject will be referred to later at greater length. The prominence of the dicrotic in the 20 cases investigated is not in accord with the views of earlier writers (cp. Broadbent, Steell, Mahomed, &c.). A partial explanation of this may be due to the fact that the tracings upon which these observations were made were taken at light pressures, for a heavy pressure tends to obliterate the dicrotic or to place it low in the tracing in these cases. It is probable that the dicrotic is present to a normal extent in most aortic cases and it would appear, contrary to the opinion of most writers, that it is of little value in estimating the amount of the regurgitation or the nature of the aortic lesions. That dicrotism depends to some extent on rebound from the aortic valves may be admitted, but, as has been pointed out by Sanderson, Sansom, Galabin, and others, it may be marked where there is free regurgitation (cp. Lewis, *Journal of Physiology* 1906). If further proof of this is required it is to be found in Fig. 10. The dicrotic is well marked, yet post mortem no trace of aortic valves could be found; the case (No. 17) was one of malignant endocarditis. It has been suggested by Galabin that the rebound may in these cases take place from the blood entering the ventricle from the auricle. This is possible, but given a negative pressure in the ventricle during diastole it is somewhat difficult to realise. Moreover, a greater delay might be expected in its appearance at the wrist. By the side of this tracing is another (Fig. 9), showing a feeble dicrotic in a case (No. 10) of free regurgitation.

FIG. 7 (CASE 6).

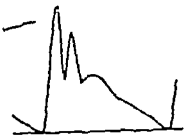


FIG. 8 (CASE 12).

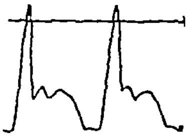


FIG. 9 (CASE 10).

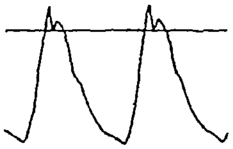
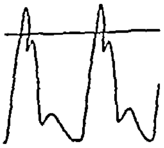


FIG. 10 (CASE 17).



The relation of the height of the first secondary wave to the height of blood pressure.—The difficulty of estimating the height of systolic blood pressure by palpation has only recently been recognised, with the advent of the later and more accurate instruments devised for this purpose.[3] Many prominent writers on the subject of pulse tracings, notably Mahomed, insisted that there is a definite relationship between the height of the first secondary wave and the blood pressure; he estimated it by drawing a line from the apex of the primary wave to the base of the dicrotic notch. He stated that if the first secondary wave was raised above this line abnormal arterial tension was indicated. The methods employed for estimating tension were palpation and the pressure of the sphygmograph pad necessary to obliterate the pulse tracing. Inaccurate method never led to a greater error; it will suffice if a few tracings are given. The first (Fig. 12) a flat-topped pulse in a patient with systolic blood pressure of 115 mm. Hg, and another (Fig. 11) a collapsing pulse from a patient with a systolic pressure of 160 mm. Hg. They are examples

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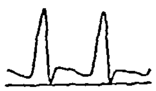
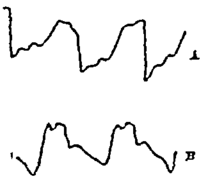


Left pulse, B.P. 160.

FIG. 12.



A, Cardiogram. B, Left pulse, B.P. 115.

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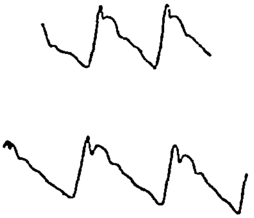
FIG. 13.



Bibliography.—Wm. Broadbent: Brit. Med. Jour., Jan., 1899, vol. i., p. 75. Broadbent: The Pulse, London, 1890. Chapman: cited by Allbutt, A System of Medicine, London, 1898. Corrigan: Edinburgh Medical Journal, 1832. Galabin: Transactions of the Royal Medical and Chirurgical Society, vol. lix., 1876, p. 361. Janeway: The Clinical Study of Blood Pressure, New York and London, 1904. Keyt. Sphygmography and Cardiography, New York and London, 1887. Landois and Stirling: Text-book of Physiology, 1888. Marey: La Circulation du Sang, &c., Paris, 1881. Mahomed: Medical Times and Gazette, 1872–74; Guy's Hospital Reports, 1879. Morison: THE LANCET, Dec. 29th, 1894, p. 1532. Sanderson: Handbook of the Sphymograph, London, 1867. Sansom: The Diagnosis and Diseases of the Heart, London, 1892. Steell: Syphgmograph in Clinical Medicine, London, 1899; THE LANCET, Nov 24th, 1894, p. 1206.

Taff's Well, Cardiff.

THE RASH IN CEREBRO-SPINAL MENINGITIS.

BY WILLIAM WRIGHT, M.D. GLASG., D.P.H. CANTAB.,
SENIOR ASSISTANT MEDICAL OFFICER OF HEALTH, GLASGOW.

IN only a few of the numerous cases of the above disease which have occurred in Glasgow since the first quarter of the year has a rash appeared. This is in accordance with the reports of similar epidemics from various quarters in Britain. Herpes has been noticed in several and is usually situated at the angles of the mouth. But it is in regard to those cases in which a definite rash has appeared on the body before death that I desire to call attention. In two a decided purpuric rash, purple in colour and hæmorrhagic in character as spots, with well-demarcated edges, varying in size from a pin head to rather smaller than a lentil, were seen closely packed on the dorsum of the feet and nowhere else on the body. In another in which death took place within 16 hours from the time of onset (the first symptom being that of delirium, the child waking at 4 A.M. in this condition) a well-marked punctate hæmorrhagic rash, each spot singly of the size of a pin head, and in places in clusters of six or seven, was seen scattered all over the trunk and limbs. In another in which death took place after 24 days' illness a rash appeared on the seventh day and from the subsequent history evidently came in crops. On examination on the twenty-first day of the illness, purple and maroon spots, circular, with regular edges all the same size—i.e., that of a lentil—were seen on the dorsum of the feet, on the arms, the legs, the trunk (back and front), four below the chin, and one behind each ear. They were scattered over the body with areas of three to four inches of normal skin between each. These spots were definitely hæmorrhagic in character and so well defined as to be seen from a considerable distance, the picture presenting quite the aspect of "spotted fever." A cluster of 15 maroon spots occupied the interscapular space and appeared on the previous day. On visiting the case the following day those spots previously maroon had changed to purple, were still of the same size, circular with regular edges, but now quite purple. Next day—i.e., the twenty-third day of the illness—they had almost disappeared and fresh maroon ones were seen in other situations. Larger pale-blue blotches with irregular edges fading into the surrounding tissues, 16 in number, were also noticed on the trunk and limbs. They occupied the cutis vera, normal skin could be seen distinctly over them, and at no time was any alteration in their colour, appearance, or position noted.

Glasgow.

A NEW METHOD OF ADMINISTERING AN ANÆSTHETIC THROUGH A TRACHEOTOMY TUBE.

BY WALTER P. COOKLE, M.D. DUB.,
ANÆSTHETIST TO THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.

THOSE of us who are called upon to administer an anæsthetic to a patient through a tracheotomy tube, whether the operation be for laryngotomy, thyrotomy, or other operation requiring a preliminary tracheotomy, have usually adopted one or other of the following methods—namely, a small catheter attached to a Junker's apparatus, a flexible tube and funnel (Hahn's), or a Skinner's mask held over the tracheotomy tube at a suitable distance. The objection to the first two methods is that they tend more or less to obstruct the already diminished air-way, which is one of the great difficulties in the way of administering an anæsthetic in these cases. The presence of a tracheotomy tube in the trachea is already a narrowing of the passage; if anything further, as a catheter, be introduced into this it means a further narrowing; or should respiration be carried on through a long tube the case is even worse—and add to this the deleterious effect of chloroform on respiration and the danger to the patient becomes enormously increased. With regard to the Skinner's mask, the size of the thing itself and the hand of the anæsthetist, taken in conjunction with the smallness of the field for operation, must hamper the movements of the surgeon considerably. Even in the Trendelenburg position the gain in room is not sufficient entirely to counteract these objections. With respect to charging up a patient with chloroform in these cases, to my mind it is a practice to be condemned as fraught with much danger; besides, the patient keeps coming round, often at inconvenient times for the surgeon. With a view to overcoming these difficulties I have had an instrument made for me by Messrs. Hockin, Wilson, and Co. The total length of the instrument is about 15 inches and it is composed of a handle, F G, and a long arm, F E D C B to A. The latter is of flexible metal from D to A and is bent as illustrated. A is a one and a half inches square frame, which is to be covered with lint held in position by a safety-pin or stitching.

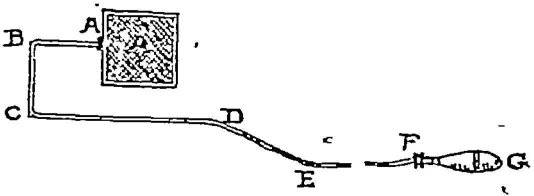


Diagram of Inhaler.

To use the instrument a piece of lint or similar material is stretched across the square A so as to cover it above and below and held in place by means of a safety-pin. Chloroform or O.E. is sprinkled on this from a drop-bottle and the part B C is rested on the sternum of the patient, so that A is above the tracheotomy tube. The limb C D to E is so bent as to bring the point E well down towards the operation table out of the way of the surgeon; E F gradually sloping up and bringing G to about the level of the patient's ear. The length of the instrument enables the anæsthetist to stand well back while using it. The square A was laid on the abrupt primary upstroke (cp. Corrigan). It was shown by him that this feature is the most constant in curves of aortic incompetence and it is referred to by all writers. The abruptness of the upstroke is due to the sudden change from a low diastolic to a high systolic pressure, but it is probable that this character is present in many other conditions, notably high tension of cardiac origin with rapid outflow. Anacrotism has been mentioned already; apart from stenosis it is not commonly met with in aortic disease. In the one case (No. 2) of the 20 tabulated it was only temporary and associated with poor compensation, high blood pressure, and granular kidney (*Fig. 2*). It was also a feature in the tracings of Case 13 on his second admission, but was present for one day only. The evidence is consequently in support of Sansom's view that it is a sign of failing compensation and has a bad prognostic significance. The height of the first secondary wave has been shown to depend on the condition of the vessel wall. For this reason the anacrotic type should be found where sclerosis is marked (as in Case 2). Four tracings (Figs. 2, 3, 6, and 8) are given, illustrating the height of the second wave, and two others (Figs. 5 and 7) illustrating varying depth of the bisferiens notch. Tracings shown in Figs. 5 and 8 are from the same patient; the type shown in Fig. 5 remained for two days only, during which period the patient showed some heart irregularity.

FIG. 2 (CASE 2).

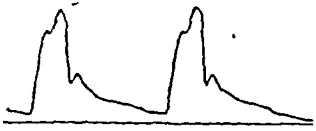
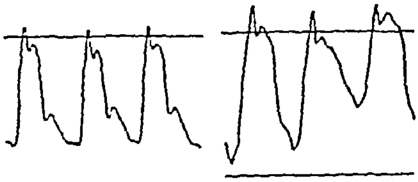


FIG. 3 (CASE 1).



In Fig. 3 a tracing from a thoracic aneurysm (of Case 1) is given (to the right); that to the left is from the radial. The change in the type of pulse during transmission is very slight. In Fig. 4 (Case 2) a very flat-topped type is shown, with the corresponding cardiogram to the right; the change in type during transmission is in this case remarkably small. Pulses of this type never feel collapsing to the finger, though they may be empty between the beats. A collapsing water-hammer pulse is shown in Fig. 8.

In the 20 cases referred to a somewhat inconstant relationship was found between the length of interval between the first and second waves and the prognosis. From these 20 cases and numerous other cases investigated I am inclined to associate the length of this interval with dilatation of the heart; it has never been found of any great length, except in patients with very large hearts (Fig. 7 is from Case 6 and Fig. 5 from Case 12.) As a rule, it is associated with depth of the bisferiens notch but by no means invariably (*Fig. 8*).

FIG. 4 (CASE 2).

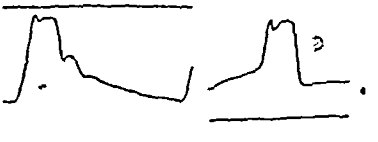


FIG. 5 (CASE 12).

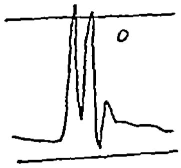
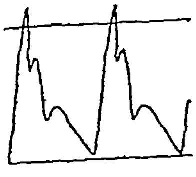


FIG. 6.



The subject will be referred to later at greater length. The prominence of the dicrotic in the 20 cases investigated is not in accord with the views of earlier writers (cp. Broadbent, Steell, Mahomed, &c.). A partial explanation of this may be due to the fact that the tracings upon which these observations were made were taken at light pressures, for a heavy pressure tends to obliterate the dicrotic or to place it low in the tracing in these cases. It is probable that the dicrotic is present to a normal extent in most aortic cases and it would appear, contrary to the opinion of most writers, that it is of little value in estimating the amount of the regurgitation or the nature of the aortic lesions. That dicrotism depends to some extent on rebound from the aortic valves may be admitted, but, as has been pointed out by Sanderson, Sansom, Galabin, and others, it may be marked where there is free regurgitation (cp. Lewis, *Journal of Physiology* 1906). If further proof of this is required it is to be found in Fig. 10. The dicrotic is well marked, yet post mortem no trace of aortic valves could be found; the case (No. 17) was one of malignant endocarditis. It has been suggested by Galabin that the rebound may in these cases take place from the blood entering the ventricle from the auricle. This is possible, but given a negative pressure in the ventricle during diastole it is somewhat difficult to realise. Moreover, a greater delay might be expected in its appearance at the wrist. By the side of this tracing is another (Fig. 9), showing a feeble dicrotic in a case (No. 10) of free regurgitation.

FIG. 7 (CASE 6).

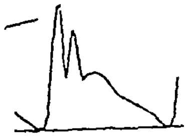


FIG. 8 (CASE 12).

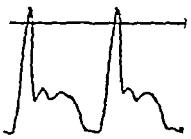


FIG. 9 (CASE 10).

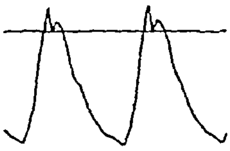
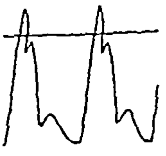


FIG. 10 (CASE 17).



The relation of the height of the first secondary wave to the height of blood pressure.—The difficulty of estimating the height of systolic blood pressure by palpation has only recently been recognised, with the advent of the later and more accurate instruments devised for this purpose.[3] Many prominent writers on the subject of pulse tracings, notably Mahomed, insisted that there is a definite relationship between the height of the first secondary wave and the blood pressure; he estimated it by drawing a line from the apex of the primary wave to the base of the dicrotic notch. He stated that if the first secondary wave was raised above this line abnormal arterial tension was indicated. The methods employed for estimating tension were palpation and the pressure of the sphygmograph pad necessary to obliterate the pulse tracing. Inaccurate method never led to a greater error; it will suffice if a few tracings are given. The first (Fig. 12) a flat-topped pulse in a patient with systolic blood pressure of 115 mm. Hg, and another (Fig. 11) a collapsing pulse from a patient with a systolic pressure of 160 mm. Hg. They are examples

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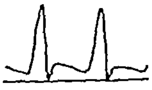
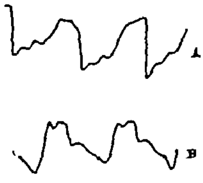


Left pulse, B.P. 160.

FIG. 12.



A, Cardiogram. B, Left pulse, B.P. 115.

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[3] The instruments used in these investigations have been the Dudgeon sphygmograph and C. J. Martin's modified Riva-Rocci sphygmomanometer.

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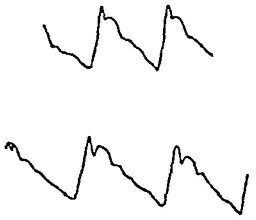

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Glasgow.

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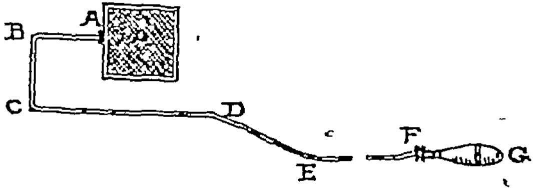

Diagram of Inhaler.

To use the instrument a piece of lint or similar material is stretched across the square A so as to cover it above and below and held in place by means of a safety-pin. Chloroform or C.E. *is sprinkled* on this from a drop-bottle and the part B C is rested on the sternum *of the* patient, so that A is above the tracheotomy tube. The limb C D to E is so bent as *to bring the* point E well down towards the operation table out of the way of *the* surgeon; E F gradually sloping up and bringing G to about the level of the *patient's ear. The length of the* instrument enables the anæsthetist to stand well back while using it. The square A can be raised or lowered over the tracheal opening in two ways—first, as the metal at B is flexible it should be bent up to an angle of about 30°; and secondly, using C B resting on the sternum as a fulcrum by merely raising or lowering the handle F G the distance of A above the tracheotomy tube can be easily adjusted from time to time, to whatever extent desired, according as less or more chloroform is to be given.

In order to replenish the anæsthetic it can either be sprinkled on the lint while *in situ* from a drop-bottle or the whole instrument can be withdrawn sideways for the purpose without trouble. The double lint on the square frame takes a good charge of the anæsthetic and being double and sloping downwards towards the sternum the liquid does not tend to drop on to the tracheal opening should too much accidentally run out. By this method the air-way is not encumbered and feathers can be passed into the tube at any time.

I will quote a case in which I used a model of this instrument and where, I am sure, the patient could never have stood a catheter or tube introduced into the tracheal opening.

The patient, a boy, aged two and a half years, had total occlusion of the larynx due to papillomata, and was sent to hospital for operation. A tracheotomy had been performed some time previously, and through this opening the child breathed fairly well, but the pulse intermitted about every third beat. I anæsthetised the patient with chloroform in the first instance—he appeared to take it well. However, just before the operation was begun the breathing became bad, so I changed to ether, and as it improved to O.E., gradually increasing chloroform until finally anæsthesia was maintained by chloroform alone—using the same instrument throughout. The first incision was made during the O.E administration and the operation was proceeded with. It was curious to note how as the patient took more and more of the anæsthetic he became inured to it, for after half an hour he took pure chloroform without any unfavourable effect whatever either on respiration or the heart; he breathed freely, kept quite warm, and the face was a good colour all the time. Altogether he was under the anæsthetic three and a quarter hours, six drachms of chloroform being used and about three ounces of ether. There was no interruption of any kind during the operation. By adopting this method the patient had the full benefit of the calibre of the tracheotomy tube as a medium for respiration. There was no resistance to expiration; the miniature mask is not cup-shaped but perfectly flat and was never nearer to the tracheal opening when charged with chloroform than about one and a half inches, thus allowing a good outlet during expiration—which is, I think, of more importance than is generally supposed—as well as allowing a desirable proportion of air to mix with the anæsthetic prior to inhalation.

Should the operator and his assistants desire to take full possession of the head and neck of the patient and the anæsthetist, having put the patient under, be required for this purpose to continue the anæsthetic from the other end of the couch, this can be easily accomplished by inverting the instrument and extending the frame carrying the lint about 150°. By this means, and still resting B C—which for simplicity I may call the cross-bar or sternum piece of the instrument—on the sternum, the whole can be manipulated in precisely the same manner as before—that is to say, by raising or lowering the handle the mask is lowered or raised at will. In the case I have just quoted it was not necessary to adopt this course, as when the surgeon wanted to work from above or to obtain a good view downwards from the head to the larynx it was possible for him to obtain his wishes during a brief interval in which the anæsthetic was suspended.

One word of warning is perhaps necessary in the use of this instrument, and it is that while the surgeon is engrossed in his work he may inadvertently rest his arm on the lint-covered frame and press it down over the tracheotomy tube, but this can easily be guarded against by observing when he is going to adopt that position and moving the instrument out of his way for the time.

The advantages to be derived from this method may be summarised as follows: (1) It administers chloroform or O.E. efficiently; (2) practically it does not interfere with the surgeon at all; (3) it gives the surgeon the maximum space possible; (4) it is much safer than a tube and funnel or catheter and Junker arrangement, and it is not so cumbersome and obtrusive as a Skinner's mask; (5) it is cheap, durable, and easily sterilised; (6) it is flexible and can be accommodated to any position to regulate the quantity of anæsthetic given; (7) in case of necessity it will administer ether alone as a stimulant; and (8) it can be used from any position to suit the surgeon.

Ealing, W.

ANKYLOSTOME PARASITISM AMONG THE NATIVE LABOURERS IN THE TRANSVAAL.

By W. G. TOTTENHAM POSNETT, F.R.C.S. IREL.,

HONORARY PATHOLOGIST TO THE JOHANNESBURG HOSPITAL.

WHILE acting as medical officer in charge of the Johannesburg Prison from March to August, 1904, I noticed that many of the natives under my care were suffering from anæmia, some to a slight degree, others showing marked blanching of the mucous membranes, though, like all natives, they did not report themselves sick until they were in a serious condition. One morning the head warder in charge of the native section of the gaol sent a "boy" up to the hospital as he seemed ill, and on my rounds I saw him and made the following note of his condition. He was a tall well-nourished "boy" (Shangaan). The mucous membranes were almost white, the respirations (while standing) were 29, the temperature was 97·4°F., and the pulse was 112. There was great cardiac distress, with diffuse præcordial pulsation. When asked where he was sick he pointed to his epigastrium. Suspecting ankylostomiasis, though never having heard that the disease occurred among the natives here, I examined a portion of his stool microscopically and found numerous eggs of the ankylostomum duodenale. Being very busy at the time I was unable to investigate the case further but the "boy" got quite well under the usual thymol treatment.

Since being appointed honorary pathologist on the staff of the Johannesburg Hospital I have had more opportunities of following up the idea that I had formed that the natives were extensively infected with ankylostomes. This surmise has been borne out by the investigation of some 40 specimens of the stools of natives admitted for various diseases to the native medical ward of the hospital. The "boys" from whom the specimens were obtained belong to the many and various tribes which inhabit South Africa, south of Rhodesia, and including Portuguese East Africa. Out of the 40 specimens of fæces subjected to microscopical observation 32 per cent. contained the ova of the ankylostome. None of these natives showed symptoms of ankylostomiasis. I noticed that the natives from Portuguese East Africa and the Shangaans from the low veldt were more frequently the hosts of the parasite than the members of other tribes. This parasite is therefore evidently widely distributed throughout the natives employed on the mines of the Witwatersrand and such being the case the economic importance of its recognition to the mining community of these fields cannot be passed over in a light manner. Although not as a rule, so far as I can find out, a direct cause of death among the natives of the mines its debilitating presence must be counted as a serious factor in the high death-rate prevailing among our native labourers. But the importance of this parasitic nematode worm being a very frequent inhabitant of the intestines of our coloured workmen does not end with the native—we have to think of our white miners as well.

From information imparted by old miners on the Rand it is evident that the sanitary conditions underground on the mines during the time of the South African Republic were in a most primitive condition, consequently the native evacuated his intestinal contents anywhere and everywhere in the workings, thus contaminating the ground with a most dangerously infective host of ova of the ankylostome. The white miner was far from innocent in the same respect. It is therefore a foregone conclusion that our white miners must be extensively infected by ankylostome parasites, and, although they may not show any symptoms of doing so, their working capacity and illness-resisting powers must be considerably reduced. Unfortunately, I am not in a position to be able to obtain the necessary material for a microscopical search of the white miners' intestinal parasites so as to prove the above assumption, but I do not doubt its correctness. In 1902 Haldane and Boycott were sent to investigate miners' anæmia in Cornwall with the result of finding the ankylostome to be the cause. In 1899 the Boer war broke out and as a consequence thousands of Cornish miners and miners from other parts of England, Scotland, and Wales were forced to leave the Transvaal and return home until the end of hostilities. A large number of these men found work in the mines of the old country, and the assumption forces itself upon me that these miners, importing large numbers of ankylostome ova, must have been a large factor in increasing the infection already existing among their fellow workmen, hence the symptoms which called for the investigation conducted by Haldane and Boycott.

The disposal of sewage created by a community, a large proportion of which are hosts of the ankylostomum duodenale, must be carefully considered by those in charge of the health of the inhabitants of localities where such occurs. If sewage farming be adopted the dissemination of the infecting larva by means of lettuce, radishes, and other vegetables which are eaten in an uncooked condition is very liable to occur. The septic tank system commends itself to me as being that most likely to destroy the infecting agent, unless running the sewage out to sea be available. I believe it has fallen to my lot to be the first[1] to point out the existence of ankylostome infection among the natives of the Rand, but the more complete research into the infection of white miners I must leave to those whose opportunities, as medical officers of the various mines, are almost unlimited and whose time is not occupied by the uncertainties of general practice.

Johannesburg.

URINARY CALCULUS AND ITS DETECTION WITH THE X RAYS.

By EDWARD W. H. SHENTON, M.R.C.S. Eng., L.R.C.P. Lond.,

RADIOGRAPHER TO GUY'S, ST. PETER'S, AND THE HAMPSTEAD GENERAL HOSPITALS.

I BELIEVE that there is a very general misconception with regard to the proper uses of the x rays in the detection of urinary calculus. This opinion has been forced upon me by the reading of the little literature there is on this subject, and by conversation with practitioners who are interested in the results but are not conversant with the means by which diagnosis is attained in renal radiography. To put the matter briefly, it is not recognised that there are two ways in which the rays may be used, first, for screen examination and, second, for photographic effect, and beyond question the *former* is the one of service in diagnosing lithiasis. I make this statement after a full and deliberate consideration of the subject for upwards of nine years. It is worthy of note that, whenever or wherever a surgeon reports a case in which the x rays have been *used*, he always says "the radiogram showed this or that" and never "the screen examination" It is not to be wondered, therefore, that one hears continually of the "deceptiveness of skiagrams" and "expert interpretations of radiograms," &c For the last two years in my own practice I have used radiograms as the microscopist would use photography as a means of recording what has already been seen and as a reference when examining other cases.

There is little doubt that improvement in methods and apparatus is largely responsible for the better screening capabilities of the x rays but this does not tell the whole story. The active x rays—by which I mean the x rays as they illumine the screen—constitute a potent diagnostic instrument, and if we will concentrate our attention upon the shadows they throw of the living organs we can train ourselves to see much that will be of use to us as medical men. It has been truly said, "we see what we are taught to see," and the converse holds good in that if we are not shown a thing we do not see it, or at any rate are remarkably slow to appreciate its presence. It is only after watching a screen daily for many years that the x ray operator has at last had forced upon his notice facts that are of inestimable value to him as a diagnostician. The same may doubtlessly be said of many other forms of diagnosis; it must have surely been a long time before the first users of auscultation found out how to sift and classify the sounds they heard and knew which were normal and which were not. With the screen examination of other regions of the body save those containing the urinary organs we are not concerned in this article, but these regions, the abdomen and pelvis, must be specially considered. There is, I regret to say, a general tendency to invent complicated apparatus for obtaining abdominal skiagrams—machines that cut the current off during a portion of a breath, apparatus that exerts pressure on or around a kidney to hold it still, &c., and no extra care is being bestowed upon the obviously efficient and invaluable screen. If anyone will take a little trouble and study the screening method I am about to describe I feel convinced he will be surprised, firstly, at how little he can see; secondly, at how much, and what assurance he will feel as to the presence of a stone when once he has seen it *in situ* upon the screen, and not as a mere smudgy mark upon a dismal-looking radiogram. I would not do away with radiography, for by its means much useful and confirmatory evidence in urinary cases is forthcoming, but it should be clearly understood that because an object is not visible in a photograph it is not necessarily absent in the subject photographed—the skiagram may be too bad; or—and this also is very likely—it may be too good. It should be generally understood that if a skiagram, particularly of the lumbar regions, possesses great pictorial beauty, a clear spine with a few well-defined and clear cut ribs, it is usually inadequate so far as diagnostic value is concerned. Pale stones, such as phosphatic calculi, and little stones will not appear, and to show these it is essential to get a dull grey image which, from a pictorial point of view, is unattractive. I am told by certain radiographers that surgeons will not receive these pictures but insist upon a bright cheerful skiagram which shows nothing useful, and to clinch the argument I have been shown splendid photographs taken by a local pharmaceutical chemist or instrument-maker showing a black well-defined calculus, and told that is how surgeons like their calculi shown. Now I venture to think that these radiographic experts are to blame for not properly enlightening the surgeon in this matter. It is not usual to blame the physician because a heart bruit is not as loud in one particular case as in another, and we do not usually suggest that if he cannot make this bruit louder we shall be forced to go elsewhere for our consultant. Is there, therefore, any more sense in blaming the radiographer because he only shows a faint shadow in a photograph when by its mere showing he can tell you three important facts—firstly, the presence of a stone; secondly, its quality; and thirdly, its anatomical position? Is it reasonable to hold up to him the record of a powerful x ray obstructing oxalate stone which no amount of skill would prevent from throwing its shadow on a photographic plate and which therefore is an ideal subject for the lay x rayist, and tell him that he must make all his uric acid stones appear the same? Then the surgeon will occasionally say: "I had a good x ray photograph taken of the patient but it showed no stone." Just so; and if he had had a good screen examination followed by what he would call a poor photograph he would have had much useful and sensible information which would have served him better than his stone-obliterating but pictorially excellent radiogram.

Another difficulty the surgeon unintentionally puts in the radiographer's path is the following. He must have a skiagram of large dimensions and the larger the area the more accuracy he imagines he is getting. In this matter he is totally wrong and if he would spare a little time and watch the effects of a contracting diaphragm on a given screen image he would quickly appreciate the fault. Increasing the size of a radiogram is like throwing extraneous light upon a magic lantern picture, the excellence of the latter being in inverse proportion to the quantity of extraneous light thrown. Or, to use a photographic simile, the difference between an unstopped and stopped lens is the difference in effect between the large radiogram and the small. Now, if we have a large radiogram of the abdominal region, including both kidneys, ribs, and crest of ilia, we succeed in excluding all but the most opaque and obtrusive stones, and a little experimenting with a few small calculi laid upon a patient under x ray examination will at once prove this fact. One striking case of this kind I might mention was when the open tube showed no calculus, a large diaphragm demonstrated a small elusive shadow in the left kidney region, and by contracting the diaphragm until it was only just larger than the little shadow a calculus was observed the outline of which was clean cut and clearly defined; the photograph which I took measures about one and a half inches square. "The smaller the diaphragm the better the skiagram," would be a true maxim if it were borne in mind that the actual image does not become smaller, and therefore the diaphragm must be sufficiently large to include the object examined. We have no method of reducing the size of our image as in photography, for the x rays cannot be refracted, reflected, or influenced in any such way. Now it would be very laborious and well-nigh impossible to take a quantity of little skiagrams about one and a half inches in diameter all over the urinary areas, and it is, therefore, to the screen that we must turn for assistance. In a screen examination it is possible to examine the patient in a series of small areas and in this lies one of the superiorities of screening over photography. Moreover, the amount of movement constantly present in the abdomen, whatever precautions are taken, such as holding the breath, fixing the kidney with compressors, &c., makes photography in small areas often of little use, whereas the slight movement upon the screen is a positive help in the detection of a foreign body.

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[1] Transvaal Medical Journal, April 1st, 1906.

It may be of interest to the reader if I give a brief description of the routine examination of a patient suspected of urinary calculus, the principle being one I have employed with more or less success in the examination of over 1600 cases. The source of light should be below and the screen above. This is effected by the patient lying on a table with a canvas top. He lies upon his face, for in this position the abdomen is reduced in antero-posterior measurement. The screen is placed upon his back. The tube from the first should be shaded by a diaphragm of some x ray opaque material—metal or a special kind of indiarubber. The opening in this diaphragm should not be more than four inches if variable or three inches if fixed and the tube is brought as close to the patient as is consistent with comfort. This will probably be three or four inches from the skin—if much nearer the high tension current is perceptible and causes more or less discomfort; it is not, however, painful or dangerous from this part of the tube. Now we come to an important consideration and that is the difficulty of seeing an image upon the screen through this thick part of the body. It is essential that the operator shall have been at least 15 minutes in the darkened room before he can fully appreciate the screen picture, and one has only to go into a dark room from bright daylight and wait to realise the enormous facility the eye has of adapting itself to varying degrees of illumination if given sufficient time, and how in a few minutes the apparently dark room becomes more and more a room of subdued light only. Coming from ordinary daylight to look at the screen in a quite dark room the operator's vision will slowly and steadily improve for quite 15 minutes. There is no doubt, however, that confinement in a dark room is very tedious and unattractive to a busy man and I have overcome this difficulty in the following manner. The screen image is, as most people are aware, yellow usually, but sometimes slightly greenish. I have therefore lighted the operating room with the complementary colour—in my own case a blue light, and this, though ample light for most purposes, leaves the retina immediately ready to receive the yellow screen light. I would particularly call attention to this matter as it has been a great comfort and for me an important feature in connexion with screen examination.

What one observes first of all upon the screen is a dim circle of light and this by suitable mechanism is adjusted in the middle line until the individual lumbar vertebræ are discernible. Then it is well to look for the transverse processes. If these are clearly seen the operator may feel assured that no calculus of reasonable size or of suitable chemical consistency will succeed in eluding detection. A diligent search is now commenced, by moving the tube over the renal areas, for any suspicious-looking body. It is curious how with practice a foreign object, such as a calculus, arrests the attention. Upon discerning the slightest suspicion of a foreign body the patient is told to take a deep breath. This is done for two reasons: first, a moving body is often easier to detect than one remaining stationary; and secondly, the relative movements of this object and surrounding organs bear an important relation to one another. For example, if, as is usually possible, one edge or part of the kidney is observable, note whether the movement of this and the foreign body are coincident. If they move as one the inference is in favour of the object being a stone in the kidney, and if the relative movements do not coincide it is extremely probable that the contrary is the case. Contract the diaphragm upon this suspicious object and try to make out its outline. Renal stones have often such characteristic shapes that this may be valuable evidence. Systematic search is made in this manner in renal, ureteric, and bladder regions, being careful to look up as high as the last two ribs, and while in this position make the patient breathe deeply, for I have several times in this manner driven a stone from its lurking place behind a rib. The kidney is a more moveable organ than is usually described and normally moves appreciably with respiration. When examining over the bladder region pressure on the screen should be made as this much improves the screen picture. In this region the sacrum must be remembered, but its extreme symmetry prevents it being mistaken for calculus material; also, in the event of finding calculus in this region remember the possibility of its being in the lower ends of the ureters. I have found calculi in both ureters at the same time and from the comparison of their appearances have been able to give their composition; in one case this was oxalate of lime in the right and phosphatic material in the left. The photographic plate will be useful at this stage, for, having caught the calculus in as small a circle of light as is desirable for good definition, the plate in its light-tight envelope is placed over this spot between the patient and the screen—the rays being turned on and the lights in the room being out—a few seconds only are necessary by way of exposure with any good make of modern tube properly treated. There is no doubt that the diaphragm tends to increase the exposure, and this fact must be borne in mind.

Practice in viewing the abdomen with a fairly large diaphragm—say four inches—will reveal many of the organs there contained. It is always desirable to have the intestines as empty of solids and as full of gas as possible. In this condition the whole length of the colon is clearly and brightly outlined and as a contrast to the thick tissue of the kidney is most valuable, as it is usually easy to see the outer borders of these organs against the lighter colon. Scybala may lead to erroneous conclusions and I must confess to twice being the cause of unnecessary operations by the deceptive appearance of the renal area. This is not likely to occur again, for there is a way in which it may be avoided, and that is by examining the patients on two occasions, when the intestinal matter will, at any rate, have altered its appearance even if it has not completely passed away by suitable treatment. It is distinctly advisable, though not always feasible, that every case of suspected calculus should be examined twice if an operation is to be based upon the results of the x ray examination. Scybala more often lie to the outer side of the kidney and their presence then must make the operator suspicious of others possibly nearer the middle line. By observing relative movements, as the patient breathes deeply, mistakes may also be avoided.

I need not go further into the technique, the above description is a sufficient outline. In speaking of the screen in the diagnosis of urinary calculus I am not putting forward an untried theory, but one which a very large series of cases has proved to be sound and practical. It has reduced the inaccuracies of this branch of radiography to a minimum, and where failures do occur they are usually traceable to inability to carry out the method I have described completely. In the work I have done for St. Peter's Hospital and which, owing to the kindness of Mr. S. Allen, I have been able to check as to accuracy, there has not been an x ray report that has been proved incorrect since this system of strict screen examination was substituted for the former photographic method.

I would earnestly beg those who would avail themselves of the x rays in cases of calculus to insist, even in acute cases, that the screen be used, and this can be done without much inconvenience to the patient—indeed, with infinitely less than that occasioned by the old unsatisfactory system of pushing a plate under him and placing the tube above. It is no exaggeration to say that this plan will fail in two-thirds of the cases examined.

Harley-street, W.

A Medical Town Councillor.—Mr. H. F. Devis, L.R.C.P. Lond., M.R.C.S. Eng., was on Sept. 3rd returned at the head of the poll for the Somerset ward of the Bristol city council.

SOME OBSERVATIONS ON CONVULSIONS IN CHILDREN AND THEIR RELATION TO EPILEPSY.

BY R. O. MOON, M.D. OXON., M.R.C.P. LOND.,
PHYSICIAN TO THE WESTERN GENERAL DISPENSARY, MARYLEBONE, AND TO THE HOSPITAL FOR DISEASES OF THE HEART, SOHO-SQUARE, ETC.

THE great frequency of convulsions in children is a matter of common observation and as in other things familiarity breeds contempt, so here they are apt to be treated as of slight importance if gross lesions of the brain or toxæmic conditions such as uræmia can be excluded. While the immediate danger to a child from a convulsion may be slight and seem indeed to interfere but little with his ordinary health, the prognostic significance of such a symptom as to the future welfare of the child, especially his mental and moral condition, is far from being unimportant. Some time ago in these columns[1] I analysed the results of an investigation into a hundred cases of convulsions in children with a view to determine their relation to epilepsy and I now propose to examine a second hundred, many of which I have been able to observe owing to the kindness of Dr. F. J. Poynton who has allowed me to make use of some of the cases in his out-patient department at the Hospital for Sick Children, Great Ormond-street.

As in my former set of cases so in these I have not been able to find any clear dividing line between infantile convulsions or eclampsia on the one hand and idiopathic epilepsy on the other, nor could one say with Russell Reynolds that there is a sharp distinction between the two, that in fact "epilepsy should be regarded as an idiopathic disease, i.e. a morbus *per se*, which is to be distinguished from eccentric convulsions." On the contrary, it has seemed to me that convulsions in early life may shade off indefinitely into epilepsy or epileptiform manifestations, so that it becomes often impossible to say where the one stops and the other begins. Infantile convulsions do not, of course, necessarily pass on into epilepsy, but it certainly seems that a much larger number do so than is generally supposed and also that we have at present no adequate criteria for deciding in a given case in favour of the more or the less serious prognosis.

Etiology.—As in the previous series so here I have found in about half the cases that the first convulsion has arisen suddenly without any obvious cause, while the child has been in apparently good health, and it is to this kind of case that the name of idiopathic epilepsy is given; in the remainder the first convulsion has arisen in connexion with some extrinsic cause, such as teething, rickets, traumatism, specific fevers, indigestion, or indefinite conditions of ill-health. Among these reflex causes of convulsions rickets and teething stand out as certainly the most prominent, the former being responsible for 10 per cent. of the cases and the latter for 17 per cent.; in the former series this relationship also obtained. As to the association with specific fevers, one finds it difficult to believe that the occurrence is so frequent as text-books would seem to suggest. One can hardly believe that many observers would endorse the statement of Koplik[2] that "the majority of the convulsive seizures of infancy and childhood occur in connexion with the infectious diseases and at the onset of those affections." In my cases there were only three instances, two occurring prior to the onset of pneumonia and one in the course of pertussis. Speaking generally, it would seem to be true that in a child subject to fits the occurrence of a specific fever increases their frequency, and I would emphasise the fact that the same is true of adults when attacked by influenza. Still there are striking exceptions to this rule. Thus, a child who had been having convulsions about once a fortnight for six months was attacked by measles and then pertussis, during which time she had no fits and in fact remained free from them for six years. Another child who began to have fits for the first time at the age of six years with considerable frequency had in the preceding two years suffered from measles, scarlet fever, and pertussis without having had any epileptiform manifestation, which one might have expected to occur in such a case if the specific fevers were powerful agents in giving rise to convulsions. Heredity has been an important antecedent in 29 per cent. of the cases but the striking fact appears that a larger number of cases arising in association with reflex conditions owned a history of heredity than did those of idiopathic epilepsy.

Alcoholism.—A history of this was found in one or both parents in 10 per cent. of the patients and these were equally divided between both types of cases.

Prognosis.—Natural as it seems to suppose that the prognosis would be greatly better in cases originating in connexion with some peripheral irritation, where at all events there appears to be a chance of removing the cause, I have not found this borne out by facts. Thus of 50 cases of convulsions associated at their onset with some extrinsic cause such as I have enumerated above, in 40 per cent. the convulsions ceased after the removal of the apparent cause, while in 36 per cent. they continued; among the 50 cases arising from no apparent extrinsic cause, in 30 per cent. of cases they ceased while in 44 per cent. they continued. True, this shows a balance in favour of a more hopeful prognosis in the case of reflex convulsions, but the scale does not incline so heavily to that side as is usually supposed. The frequency of the fits is not, however, the most important matter in the prognosis. Epilepsy would not be so serious a disease if it were only the fits as such which had to be considered; unfortunately it is the mental and moral impairment of the patient which make the disease so universally dreaded. With regard to the question of mental impairment, we find that among those whose convulsions arose without any obvious cause 18 per cent. showed definite signs of mental weakness, while of those arising from reflex causes 23 per cent. suffered in this way. According to Savage "all epilepsy tends naturally to weak-mindedness, this depending rather upon the frequency of the fits than upon their severity, and epilepsy when occurring before seven years of age is certain to leave the patient weak-minded." We have not found the prognosis quite so bad as this, but doubtless had we been able to follow up cases much beyond the age of childhood we should have found a still larger percentage of cases that had been mentally weakened. Coming to the question of moral impairment, we again find a somewhat larger proportion of the cases due to reflex causes exhibiting moral deterioration than of the idiopathic cases; of the latter there were 34 per cent. and of the former 43 per cent. It is curious to note that a larger number of the children are affected prejudicially as to their general temper and character—that is, on the moral side—than as to their intellectual powers. Somewhat similarly it has been observed that in general paralysis of the insane it is the finer attributes of temper and character which begin to be blunted before the mental powers show definite impairment; possibly the former are flowers of more delicate growth so that very slight disturbances cause them to wither. Even after all convulsions and *petit mal* attacks have definitely ceased we often find manifestations of nervous instability which, though not epileptic, seem to have some affinity with epilepsy and might be called, to use Spratling's expression, "fragments of epilepsy."[3] Thus two of my cases after the cessation of convulsions suffered from enuresis, and a third from night terrors; in these the initial convulsions had occurred in connexion with rickets. We have similar instances in the case of those whose first fit was associated with teething. One patient after the cessation of the fits used to suffer periodically from a peculiar knocking sensation at the forehead, while another had occasionally temporary paresis of the right arm and leg, a third suffered from somnambulism, and in a fourth asthma occurred. Instances such as these seem to indicate that a radical unsoundness of the central nervous system is a more important factor in the production of infantile convulsions than an extrinsic cause.

Treatment.—I have little to add to my previous observations on this head. Urethane was tried in a few cases where other drugs had failed, and in three instances it certainly did good and I have not found that it has had any prejudicial effect on the general health. Spratling speaks of it as worthy of trial in cases in which the bromides give no benefit. Chloral is often useful as a temporary measure when the fits are very frequent and violent, but it is important to leave it off gradually, as when stopped abruptly it seems to make the child peculiarly restless and irritable. As to surgical operations, one case became distinctly worse after the removal of tonsils and adenoids, another was unaffected in any way by the same operation, while a third seemed to improve. One case suffering from rather bad phimosis showed no improvement as regards the convulsions after being circumcised.

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[1] THE LANCET, Dec. 24th, 1904, p. 1773.

[2] Koplik: Diseases of Infancy and Childhood, p. 473.

[3] Spratling: Treatment of Epilepsy.

Conclusion.—From what has been said it seems difficult to avoid the belief that convulsions in infancy associated with reflex causes have a much more serious prognostic signification than is usually supposed, not only as regards the frequency of the convulsions but still more as to the probability of future mental and moral deterioration. The reason why it has been customary to attach so much importance to convulsions of idiopathic origin is twofold: (1) the great *a priori* probability of such a view, and (2) the failure to follow up for any considerable length of time cases of convulsions associated with reflex causes. It is only the latter more humble task which I have been attempting here: at the same time, one might point out that the *a priori* reason is not so formidable as it seems. "Cessante causa, cessat et effectus" sounds very conclusive, but, of course, when we speak of rickets, teething, specific fevers, &c., being reflex causes, in strictness of logic they are merely antecedent (or concomitant) conditions, the cause being simply the totality of antecedents among which the intrinsic condition of the brain may possibly be the most important. One might also readily argue that a convulsion, to whatever cause it may be due, must have some effect upon the brain and that the nervous system very easily forms habits, so that the fact of having had one convulsion, however induced, renders it more liable to have another quite apart from any extrinsic cause. However this may be, the fact remains that in 200 cases taken haphazard, carefully investigated and followed up, the prognosis as to the future moral and mental condition of the child does not appear to be any better when the first fit is associated with a reflex cause which can be removed than when it is of idiopathic origin. It will, however, be necessary for our knowledge of the pathogenesis of epilepsy to be much further advanced than it is at present before its precise relationship to infantile convulsions can be determined.

Green-street, W.

THE PROPHYLACTIC USE OF ANTI-DIPHTHERITIC SERUM.

BY WILLIAM W. SHACKLETON, M.D. DUB.

THE following short account of the prophylactic use of anti-diphtheritic serum during an outbreak of diphtheria last autumn in a school containing over 300 boys may be of interest.

On Sept. 7th, 1905, two cases occurred in a junior house (which I will call E House) which had at the time 44 boys resident in it. From that time to the 13th four more cases occurred in this house and one in a senior house. In addition to these a boy in E house was removed and isolated on account of having a nasal discharge in which Klebs-Löffler bacillus was found; this boy was placed amongst the diphtheria cases and by douching a quantity of the membrane was removed from the nasal cavity. Out of 45 boys seven had developed diphtheria. I therefore on the 13th inoculated all the boys remaining (38) in House E with 2000 units of anti-diphtheritic serum supplied by Burroughs and Wellcome. The next morning (the 14th) one case occurred and after that not a single case occurred for five weeks in this house. I examined these boys' throats every day and took swabs therefrom. I found nine boys with the diphtheria bacillus present. These boys I isolated (not putting them, however, with the diphtheria cases) and kept them so until swabs were obtained free from the bacillus. The bacilli were persistently present in one boy's throat for five weeks, at the end of which period he developed small patches of membrane on each tonsil. He had been inoculated on the 13th with his house. This is interesting as tending to support the view generally held that the prophylactic effect of the serum lasts about five weeks.

On the 28th I saw a boy from a senior house who had well-marked membrane on the tonsils and soft palate. The diphtheria bacillus afterwards was proved to be present. He acknowledged that he had had a sore-throat for two or three days but had kept the fact to himself. I therefore examined all the school (317) and found two cases of diphtheria. On the following day, with the help of my colleague, Mr. G. Francis Smith, and Dr. J. H. Hebb, all the boys in the school (with the exception of E house previously done) were inoculated with 1000 units of anti-diphtheritic serum supplied by the Lister Institute. No more cases occurred amongst the senior boys.

In E house, which was the original focus of infection, one case occurred on Oct. 18th. This case was that of a boy who had come back on Oct. 14th and was not inoculated. He was the only boy in the whole school (except those who had actually developed diphtheria previously to the inoculations) who had not had a prophylactic dose of serum. Amongst the 317 healthy boys inoculated no ill effects ensued. One boy was kept in bed two days as there was a good deal of pain and swelling in the region of the inoculation. No other boy was absent from the school or unable to play games. Many had slight urticarial rashes. I found that the least painful place to inject was the buttocks. The inoculation of this large number of boys was done in about two and a half hours, thanks to the able assistance of the staff. All that we had to do was to fill the syringes and inject. By having a good supply of needles a sterilised needle was always ready. The skin was previously well scrubbed with soap and antiseptic and covered with a moist dressing, gauze being strapped on immediately after the injection. On the 19th the boys of E house were for a second time inoculated with 1000 units of serum. This I did after the boy who had missed being inoculated developed diphtheria. A month had elapsed since the first inoculation.

To sum up. No case occurred amongst boys belonging to E house after the first inoculation for five weeks, except one, and that on the day following the injection. The case that did occur at the end of five weeks had the Klebs-Löffler bacillus present during the whole of that period. One other case occurred in E house but that was in the case of the only boy who had not received any serum. No case occurred amongst the senior boys after the injection, although three cases had occurred and these were freely mixing with their companions until detected and removed. That no cases did occur and escape detection I am pretty certain, as I made a daily inspection of all the boys' throats for a considerable time. I may add that all the 14 cases of diphtheria did well. With the one exception of the boy at large for two or three days all of them got inoculated within a few hours after the first symptoms of the disease had manifested themselves.

Bushey, Herts.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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A CASE OF FAUCIAL ANGINA WITH FALSE MEMBRANE (NON-DIPHTHERITIC) SIMULATING DIPHTHERIA.

BY J. T. C. NASH, M.D. EDIN., D.P.H. CANTAB.,
MEDICAL OFFICER OF HEALTH OF SOUTHEND-ON-SEA; MEDICAL SUPERINTENDENT OF SOUTHEND-ON-SEA BOROUGH SANATORIUM.

A WOMAN, aged 38 years, felt her throat uncomfortable on August 5th, 1906 She sought advice on the 6th, when the pharynx was found to be slightly congested and a thin film was observed on the tonsils which, however, were not noticeably enlarged. There was no nasal discharge nor were any glands unduly enlarged. The film on the tonsils was easily removeable without leaving a bleeding surface These early clinical signs were on the whole against a diagnosis of diphtheria. Cultivations made from a swab showed the presence of cocci and a few wedge-shaped bacilli. On the 7th there was a more pronounced film, a second swab cultivation showing streptcocci and other cocci. On the 9th there was definite false membrane of considerable extent and thickness. Large patches were visible on the left tonsil and behind the posterior pillar of the right fauces. A piece of membrane stained and examined for bacteria showed the presence of streptococci and other bacteria. A swab cultivation after 24 hours' incubation showed the presence of spirilla, large fusiform bacilli, small faintly stained bacilli, a few tetracocci, and streptococci. The combined clinical and bacteriological evidence at this date appeared to indicate a case of Vincent's angina. In view, however, of the definite typical false membrane diphtheria antitoxin (2000 units) was administered. Pure lysol and undiluted tincture of iodine B.P. were applied to the patches and a mixture of the perchlorides of iron and mercury was administered. On the 16th the following note was made: "Membranous formation still continues. The subjacent tissue, which at first was merely congested, has later become ulcerated and bleeding occurs on removal of the false membrane." A further swab cultivation showed numerous long streptococci but no diphtheria bacilli. From this date onward improvement gradually set in, the membranous formation (which was removed two or three times a day) becoming thinner, until finally it appeared to be nothing but the exudation from healing granulations.

Apart from the very definite false membrane of considerable extent the clinical signs were in my opinion against a diagnosis of diphtheria. This opinion was sustained by no fewer than five or six carefully made *negative* swab cultivations and by the clinical course of the case. The temperature *did not at any time fall below normal.* The case emphasises the importance of bacteriological confirmation of a provisional diagnosis of diphtheria, if such diagnosis is based on membranous formation alone. It further emphasises the importance of reserving an opinion until all the evidence available has been obtained. The reservation of diagnosis should, however, not interfere with the prompt administration of a small dose of diphtheria antitoxin, which should be administered without delay *in every* doubtful case without waiting for bacteriological evidence. It is unnecessary, I hope, to add that all necessary precautions were taken in the way of isolation and antiseptic applications throughout the case, for even if not a case of diphtheria such a throat is probably of an infective nature. Amongst precautionary measures for the prevention of spread in cases of infectious diseases, in addition to the efficient isolation of the patient I always advise the daily methodical use of an antiseptic gargle (preferably a solution of permanganate of potash) on the part of others living in the same house or who have otherwise been exposed to infection.

As to the etiology of the above case there was a history of dust having been blown into the mouth a day or two before onset. This dust probably carried in deleterious bacteria, such as streptococci, &c. The organisms cultivated from the false membrane were probably saprophytic bacteria which had found a suitable nidus for development in the false membrane. An important diagnostic point is the course of the temperature. In true diphtheria this soon becomes, and for a long time remains, subnormal. In the present case the temperature was never subnormal.

Southend-on-Sea.

FRACTURE OF THE EXTERNAL CONDYLE OF THE HUMERUS.

BY W. E. HOME, M.D. EDIN.,

FLEET SURGEON, R.N.

FRACTURE of the external condyle of the humerus is so uncommon an accident that it may be well to put a case on record.

On July 23th a stoker on H.M.S. *Exmouth* caught his right elbow under the cross-head of a hydraulic engine. So violent was the blow that his arm bent the rim of a cast-brass lubricating cup. On examination he was found to have a lacerated wound on each side of the elbow. From the inner wound the finger passed through lacerated tissues down to the front of the humerus. Within the outer wound the muscles were slightly lacerated, the skin was partially separated even where not ruptured, and about an inch of the external condyle and supracondylar ridge was found lying free. No arteries bled. The loose piece of bone was fixed by a suture through its adherent soft parts. The wounds were drained and sutured (one deep silkworm-gut suture of relaxation, the others catgut continuous), and the elbow was put up in cotton wadding with elastic bandage over all. The drain was removed from the inner wound on the second and from the outer on the third day. The after-history was uneventful. The wound is now under cyanide gauze and collodion.

H.M.S. *Exmouth.*

Reviews and Notices of Books.

Traité d'Hygiène. Publié en fascicules sous la direction de M BROUARDEL et M. MOSNY. *Hygiène Navale* Par les Drs. DUCHATEAU, JAN, et PLANTÉ. (*A Treatise on Hygiene*, published in parts under the direction of M. BROUARDEL and M MOSNY.—Part 10, *Naval Hygiene*, by Dr. DUCHATEAU Dr. JAN, and Dr PLANTÉ.) One volume in octavo. 356 pages, with 36 illustrations in the text and three coloured plates. Paris: J. B Baillière and Son. Price 7 francs 50 centimes or in boards 9 francs.

IN this great work on hygiene the aim of the editors, the late Professor P. Brouardel and Dr. E. Mosny, is to formulate the contemporary hygienic knowledge of the world in as complete and perfect a manner as possible. It would be difficult to find two men better equipped for the task. Their names alone are an ample guarantee for the thoroughness of the work but they have, moreover, been successful in securing the collaboration of such well-known authorities as M. Chantemesse, M. Netter, M. Widal, M. Wurtz, M Dupré, M. Thoinot, and M. Courtois-Suffit of the Faculty of Paris; M. Courmont and M. Lesieur of Lyons; M. Rouget and M Dopter of Val-de Grâce; M. de Launay and M. Leclerc de Poligny, engineers; M. Ogier; M. Bonjean; M. L. Martin, chief medical officer of the Pasteur Institute; M. Calmette, director of the Pasteur Institute at Lille; and M. A. J. Martin, inspector of Parisian sanitation. It is proposed to complete the work in 20 parts, and so far five parts have been published dealing respectively with Atmosphere and Climate, Soil and Water, Individual Hygiene, Alimentary Hygiene, and Naval Hygiene. The last-named fascicule, as it is termed, which has just been submitted to us for review, stands tenth on the list and is divided into two sections. The authors of the first section, which treats of the navy and occupies about two-thirds of the volume, are Dr. Jan and Dr. Planté, both senior officers on the active list. For the second section, which occupies the remaining third and is devoted to the mercantile marine, Dr. A. Duchateau, who like his colleagues belongs to the navy, is responsible.

The French navy, in common with the other first-class navies of the world, has undergone such a complete transformation during the last few years, not only as regards ironclads and cruisers but also in connexion with the still progressive development of torpedo vessels and submarines, that the best attention has been devoted to attending to the sanitary details of the new constructions. No war vessel is now projected in which the requirements of hygiene can be said to be unduly disregarded. Of course, everything must yield to expediency. A war vessel is not a pleasure yacht; before everything it must be as good a fighting machine as possible; but in many ways that formerly were overlooked the health, and consequently the efficiency, of the fighters can now be safeguarded without interfering with power. From the point of view of the pure combatant hygiene should by no means be a negligible quantity. In the first subsection of their section Dr. Jan and Dr. Planté deal with war vessels; the internal arrangements of the several types, their habitableness, ventilation, warming, lighting, and water distribution. In the second subsection the mode of life of a modern sailor belonging to the navy is exhaustively reviewed as regards recruitment, duty, general and personal hygiene, and food. The third subsection treats of pathology and prophylaxis in peace time as well as during war. In their fourth and last subsection the authors have to do with barracks and hospitals on land, together with the hygiene of arsenals and workshops. Under all these various headings we obtain instruction and information from men who write with full knowledge of their subject.

Dr. Duchateau commences his section with a disquisition on the rules and regulations affecting life and health which are common to all vessels engaged in commerce, including passenger traffic. Of late years something has been done to improve the hygienic condition of the mercantile marine, but many and grave defects still need remedying, especially in vessels of low tonnage which are destitute of medical supervision. The subject bristles with difficulties, chiefly on account of the opposition of small owners. On the great liners the needs of the crew are fairly well attended to, but in "tramps" the men are often treated like cattle. It is easy for a government to issue ordinances but their enforcement is not easy. Prejudice and routine together are too strong for the average legislator whose well-meant efforts consequently remain a dead letter. Dr. Duchateau affords complete details regarding the recruitment, composition, and strength of crews in French mercantile vessels, and discusses the employment of native assistance in Oriental waters. Then he turns to the hygiene of the different classes of vessel, including yachts, which are engaged in commerce, paying special attention to the fishing fleets which frequent the Northern seas. Chapters on ships and their cargoes and benevolent institutions follow, and the section concludes with an *exposé* of the diseases and accidents to which men who go down to the sea in ships and do business in great waters are peculiarly liable.

We are accustomed in England to receive our books with the pages cut ready for reading, but this praiseworthy concession has not as yet taken root in France. This is the only adverse criticism which we have to offer upon a thoroughly interesting and suggestive work.

Thought Transference. A Critical and Historical Review of the Evidence for Telepathy, with a Record of New Experiments, 1902-1903. By NORTHCOTE W. THOMAS, M.A. 1905. Pp. 214. Price 3*s.* 6*d.* net.

Crystal Gazing: Its History and Practice, with a Discussion of the Evidence for Telepathic Scrying. By NORTHCOTE W. THOMAS, M.A. With an introduction by ANDREW LANG, M.A., LL.D. 1905. London: Alexander Moring, the De la More Press. Pp. xlvii. + 162. Price 3*s.* 6*d.* net.

THE first of these two volumes is devoted to an examination of the evidence of thought transference. The author has examined the records of the Society for Psychical Research, together with other recorded examples, with a view to establishing the necessary criteria for belief in such a phenomenon. It is obvious that the difficulties to be encountered in any such investigation must be enormous, and that the details of any reputed success require the most rigorous analysis in order to eliminate all possible sources of fallacy. Mr. Thomas points out the importance of telepathy as a fundamental conception in regard to psychical research, defining it as an "influence of mind on mind exerted through other than the ordinary channels of the senses." He refers to the very numerous sources of error to which experiments in this direction are liable, among them being hyperæsthesia of the special senses, "subconscious interpretations of subconsciously perceived indications," where the subject and agent are within sight of one another, and "muscle reading," which entirely vitiates the validity of any experiment where contact is permitted. The importance of the subliminal consciousness in reference to telepathy is the subject of one chapter and the author states that "there is reason to suppose that the *primâ facie* telepathic impressions, the impressions communicated by other means than ordinary sensory methods, depend for their communication in some way on the subliminal consciousness." The reasons for this statement, however, are not given, indeed in the next sentence we are told that "how this happens we cannot, of course, say." This is the more to be regretted in that Mr. Thomas in one of his earlier strictures on incredulity specifically excepts the "sane scepticism which refuses to accept statements not backed up by sufficient evidence." The book contains a brief history of some of the experiments which have been made by various observers. The occurrence of telepathic hallucinations, telepathic hypnotism, and telepathic dreams is discussed and reputed examples are quoted. Then a record is given of some experiments conducted in 1902, mainly under the supervision of the author. In these experiments pictures, colours, diagrams, and numbers were suggested to, or given to, one party to the experiment called "the agent"; another called "the percipient," recorded the impressions received, the two being unable to communicate directly with one another as they were separated by a double screen. The supervisor of the experiment was so placed as to be able to watch both "agent" and "percipient." The net result of all the experiments is discussed, but the author leaves his readers to make up their own minds, merely hinting his own conviction that much more effort is needed before it can be maintained that telepathy is an established fact. Here Mr. Thomas is most temperate in his conclusions and in his recommendations, but at times he is intemperate in his criticism of those who are incredulous of the results of what is called psychical research, notably in his scorn of the psychologist and of the modern school of experimental psychologists who are endeavouring to apply mathematical and experimental methods to the elucidation of mental processes. We ourselves come under the lash of his satire for a criticism of certain recorded experiments.[1]

The other volume by the same author is devoted to a study of crystal gazing. It begins with an introduction by Mr. Andrew Lang, who affirms his belief in the capacity which some people are said to possess of observing people, places, or incidents, or "scrying" as it is called, in crystal globes, giving instances which have come under his own observation, where the element of possible fraud was reduced to a minimum. Mr. Thomas tells us that a crystal vision is simply a day-dream and that the faculty of "scrying" is closely allied to that of visualising. He gives an interesting history of crystal gazing and of the allied conditions of gazing at polished sufaces, or at water, at ink, or at the viscera of slain animals, as in the divinations of ancient times. We must confess that even after reading Mr. Thomas's book we do not regard crystal gazing as likely to be fruitful of much advance in useful knowledge. These two little volumes are obviously written with a view to provide some general information on the subjects dealt with so as to render "both scepticism and credulity less excusable"—as the author says in his preface. There can be no doubt that the deceptions and frauds of plausible rogues, to which workers in the field of psychical research are from the nature of things peculiarly liable, have done much to bring that form of investigation into disrepute, especially among the workers in physical and morphological subjects, where the conditions of experiment are more easily definable and where exact methods are more readily applicable. The author has endeavoured, and with no small measure of success, to indicate that there is a field for research and that very little has so far been accomplished. He is perhaps too severe on the incredulous and the sceptical, and too prone to regard recrimination as argument, for he should remember that the onus of proof lies with those who affirm the existence of these phenomena, and with them likewise lies the refutation of adverse criticism, not in a spirit of irritation, but by actual demonstration of the errors of that criticism.

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[1] THE LANCET, May 21st, 1904, p. 1431.

A System of Surgical Nursing, with an Appendix containing Useful Formulæ, Emergency Drill, &c. By A. N. MCGREGOR, M.D. Glasg., F.F.P.S. Glasg., Assistant Surgeon to the Glasgow Royal-Infirmary. Glasgow: David Bryce and Son. Pp. 554. Price 9*s.* net.

How much should a nurse be taught of general and special surgery? The answers of this question differ widely, if we may judge by the books provided for the teaching of surgery to nurses. The work before us is one of the best of its class, and its only real fault is that it supplies much more knowledge than the average nurse will ever absorb. There are in all 42 chapters without counting the appendix. The titles will sufficiently indicate their contents: General Principles of Surgical Treatment; Sepsis and Asepsis; Bacteria; Antiseptics; Wounds; Hæmorrhage; Treatment of Hæmorrhage; Repair of Wounds; and so on. Diseases are considered as they affect the various systems, the digestive, the nervous, and bones and joints. We have said above that we consider the book very good of its kind, though it may be a little over the head of many nurses. The teaching is good, and many useful hints are given on points which should be known to all fully trained nurses. There are no illustrations, not even in the chapter on bandaging, but we think that illustrations would have enhanced the value of the book in many of the chapters. We have little to say in criticism of individual statements. Saline solution is said to be of the strength of 0·6 per cent. It is generally recognised now that a somewhat higher percentage is preferable as more isotonic with the tissues. Saline solution, we are told, is only feebly bactericidal; we should be glad to have proof that it is bactericidal at all. The book is well printed on stout paper and it should prove very useful to any surgical nurse desirous of carrying out her duties intelligently and efficiently. We regret to see that the book is undated.

LIBRARY TABLE.

The Science of Common Life. By JOHN B. COPPOCK, B.Sc. Lond., F.I.C., F.C.S. With 76 illustrations. London: Swan Sonnenschein and Co., Limited. 1906. Pp. 273. Price 3*s.* 6*d.*—The science of common life cannot, of course, be summed up in a scheme of experimental chemistry and physics, which are after all the subject matter of this book. Nevertheless, the things of common daily contact are in the main evidences of chemical composition, activity, and affinity, and the presentation of these facts in scientific, yet withal intelligible, terms is the task which Mr. Coppock has undertaken, and, we may add, undertaken well. Primarily the book has been written to meet the requirements of the Board of Education's Syllabus on "The Science of Common Life," but we are glad to note that the author repudiates the common charge brought against cram-book writers, that their works are written strictly within the confines of a syllabus and therefore are opposed to true educational methods. He purposely omits, for example, to summarise the facts at the end of the chapter: "The student is asked to draw up his own summary after assimilation of the contents of a chapter. The summary provided by a master for a student without the student's previous assimilation of the material is not real knowledge but 'cram'—in short, not educational." We commend this opinion thoroughly. The chemistry and physics of common daily facts are set forth throughout the book in terms which should be intelligible even to the general reader, who may be undisturbed by thoughts of, or preparation for, an impending examination.

A Laboratory Manual of Physiological Chemistry. By ELBERT W. ROCKWOOD, M.D., Ph.D., Professor of Chemistry and Toxicology and head of the Department of Chemistry in the University of Iowa. Second edition. Revised and enlarged. Philadelphia: F. A. Davis Company. 1906. Pp. 229. Price $1.00 net.—This book provides an excellent laboratory course of physiological study and evident pains have been taken to bring the subject matter into accord with recent advance. We have followed the detailed directions given in the experimental portions of the book, and the conclusion is inevitable that the writer is perfectly familiar with those experimental details which are essential to success. There is, however, a tendency throughout the book to bring into prominence some experiments and to undervalue the importance of others, a course which suggests a routine for mere examinational purposes. The author, indeed, says that "for the purpose of making the course flexible the less important experiments or those which are not of general interest have been printed in smaller type." We cannot agree always that the matter in smaller type is of less importance; for example, the tests for albumin in urine and the fallacies of the tests for sugar in urine are of the first interest. By the way, is it not a little inconsistent to write "chlorin" and "iodin" while the French word "gramme" is retained in the unabbreviated form?

Looking Back.

FROM

THE LANCET, SATURDAY, Sept. 13th, 1828.

RUSSIAN ARMY AND NAVY MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—Many English surgeons having proceeded to this place, in consequence of the official notification which has been addressed to foreign medical men, you will be doing a great piece of justice to the medical men in England, if you will have the goodness to communicate to them, through the medium of your valuable Publication, the contents of this letter, which may serve to give some idea of the treatment *they* will experience on coming to Russia. In the first instance, the notification states, they may either join the land or sea service. This is false; for on the application of *Englishmen* who have just arrived here, they have been told "the army is fully supplied;" and they may either embrace naval service, or return to whence they came. In the next instance, as regards the examination at the Academy, there are at present not less than thirty young men, principally Germans, with the exception of three Englishmen, who came to Petersburg with the idea of entering the service, according to the notification, who have been in attendance on the learned professor at the Academy for the space of *three months*, and with every probability of remaining three months longer. The conduct observed towards them has been highly infamous, and the state they are now in to my certain knowledge, is truly deplorable; in fact, nothing remains to be done but their immediate application to the different consuls or ambassadors, to be sent home as distressed subjects. Yesterday a body of them presented petitions to Dr. Cardanoff (the president of the Academy, in the absence of Sir James Wylee), for the return of their different certificates, preferring to get back as they can, to remaining in a country where they have been treated more like dogs than Christians. By making this publicly known, you will be doing much service to those gentlemen who have any idea of proceeding here.

I remain, Mr. Editor,
Your obedient Servant,

St. Petersburg, July 8, 1828. HENRY WILLIAMS, M.D.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT TORONTO.

(FROM OUR SPECIAL CORRESPONDENTS.)

THE Congress of the British Medical Association at Toronto closed on Friday afternoon, August 24th. The estimate of the numbers at the meeting already sent to you—viz., 2200—turned out to be practically correct, and it is generally considered that this constituted a very remarkable attendance.

The 13 sections were all located in the University and its constituent buildings and colleges, and were indicated by various sign-posts directing the way. The university park covers a considerable extent of ground, so that although all the sections were within its precincts they were not under one roof. A very useful addition to each section was a special room for the officers of the section. Most of the sections attracted considerable numbers to their meetings, and the discussions were of a high order of scientific and practical value, while the joint discussions held by various sections proved to be of great assistance and interest. The convenient manner in which the sections were housed, as well as the preliminary committee meetings held at the beginning of the week, much facilitated all the business of the sections.

The weather during the meeting has been extremely hot, and the great humidity of the atmosphere has made it uncomfortable for English visitors. But the two sharp thunderstorms which occurred during the week, associated with an almost tropical deluge of rain, had the effect of lowering the temperature, and apart from them the weather has been bright and clear. A topic of general discussion has been the general ignorance of the English people of the extent of Canada and of the nature of its climate. No little amusement has been caused by a report which is current that certain specimens sent to the exhibition were labeled, "Protect from frost."

The church service usually held at the commencement of the meeting was this year omitted, it will be perceived, but the proceedings of the inaugural ceremony were opened with prayer.

With regard to the social entertainments provided for the members, visitors, and ladies accompanying them, these have been unusually numerous and have been carried out with that open-handed generosity characteristic of the Canadians. Luncheon parties, garden parties, and evening receptions were given on each of the days of meeting. Among the parties, in addition to those already noticed, may be mentioned a luncheon for visiting ladies at the Lambton Golf Club on Wednesday, and garden parties given by Mr. and Mrs. Cox, and Mr. E. B. Osler, M.P., and Mrs. Osler. An evening reception was held on Wednesday by the Mayor and the City Council at the City Hall; on Thursday there was a reception in the Dean's garden at the University, and on Friday a very pleasant *réunion* was organised by the Royal Canadian Yacht Club at their club house on Toronto Island.

The excursions commenced on Saturday. The Entertainment Committee had arranged some attractive excursions, among them one to the Muskoka lakes and another to Niagara. The party for Niagara left Toronto at 9 A.M. and were taken to the Niagara Power Company works, now in course of construction, and afterwards entertained to luncheon at the Clifton Hotel by Sir Henry M. Pellatt. The enormous turbines now being installed and the long tunnel through which the water will be discharged afforded a most interesting and instructive sight. After luncheon the party made a tour of the Falls and of the Niagara River Gorge, *viâ* Queenston, Lewiston, and Niagara Falls, N.Y., returning to Toronto in the evening.

A considerable number of the British visitors left Toronto on Friday by the Canadian Pacific Railway to make the journey across the Rocky Mountains to the Pacific coast at Vancouver, which affords an excellent opportunity for observing the great resources and the wonderful scenery of the Dominion. Special facilities have been offered by the Canadian Pacific Railway Company to members attending the meeting, and many are availing themselves of the opportunity to remove some of that ignorance upon which Lieutenant-Governor Mortimer Clark expressed himself so strongly.

In preparing our reports of the proceedings at the general meetings and meetings of sections which follow we have received the most unvarying assistance from all the officials of the British Medical Association, and we wish to repeat our acknowledgments to them.

THE GENERAL MEETINGS.

TUESDAY, AUGUST 21ST.

THE first annual general meeting was held in the Convocation Hall on August 21st at 2 P.M. The Convocation Hall is a new building not yet entirely completed. It is of octagonal shape and is of classic design, its front elevation recalling that of the Pantheon at Rome. The chair was taken by the President, Mr. GEORGE COOPER FRANKLIN, of Leicester. In a brief speech Mr. Franklin said that it was his duty and privilege as *laudator temporis acti* to refer to the past year's work of the Association. He alluded to the time, work, and devotion given to it by gentlemen in busy practice who became members of council, representatives and members of committees. During the past year the rebuilding of the office at 429, Strand had been decided upon. He thought the Medico-Political and Ethical Committee deserved all the praise that could be bestowed on it. He wished to express his gratitude to the officials of the Association for their help during his year of office, mentioning especially Mr. Guy Elliston, Mr. Smith Whitaker, and Dr. Dawson Williams. He then introduced the new President, Dr. R. A. Reeve, dean of the University of Toronto, who took the chair and was presented with his badge of office by Dr. F. N. G. Starr, one of the local honorary secretaries. The delegates from British and colonial branches and the distinguished visitors were then presented to the new President. The former were numerous and came from nearly all the English, Scottish, and Irish universities and colleges and from many of the colonies, including all parts of Canada, Nova Scotia, India, Australia, New Zealand, and South Africa. Among the American delegates were Dr. W. J. Mayo (Rochester, New York), President of the American Medical Association, Dr. G. Ross (Richmond, Virginia), Dr. A. Macdonald (New York), and Dr. R. Woodward of the United States Department of Public Health and Marine Service. The foreign delegates included Professor Aschoff (Freiburg), Professor Delsaux (Brussels), Dr. Delezenne, Dr. L. Lapicque, Dr. Nicloux, and Dr. Nicolle of Paris, and Professor Gaule of Zürich. The MAYOR OF TORONTO then extended the welcome of the city and corporate council to Toronto, "the queen city of the west." They were delighted to welcome the Association and would do all in their power to render the visit a pleasant one. Professor IRVING H. CAMERON delivered a short address of welcome on behalf of the local reception committee, while Professor ALEXANDER MCPHEDRAN and Dr. G. A. BINGHAM delivered similar addresses on behalf of the Canadian Medical Association and of the Ontario Medical Association respectively. In accordance with the usual custom Mr. Franklin, the retiring President, and Sir Victor Horsley were elected Vice-Presidents of the Association for life. Dr. REEVE then delivered his presidential address, in which he reviewed some of the chief advances made in medicine and its attendant sciences during the past decade.

The Presidential Address.

The PRESIDENT at the commencement of his inaugural address expressed his thanks for the position of honour in which he was placed and then made some reference to the success which had attended the meeting of the Association held at Montreal in 1897. He claimed that the credit for the auspicious conditions under which this second visit of the British Medical Association to Canada was made must rest largely upon those who had freely given most valuable help in various ways. It had been indeed a labour of love to bring the select and the elect of the profession from their posts of duty and busy round in the old homeland. He greeted them not only for their own sakes as men whose names were already household words or doubtless soon would be, but as worthy sons of worthy sires. For if Bacon, Shakespeare, Newton, Faraday, Kelvin, Clerk Maxwell, J. J. Thomson, and other lights of literature, science, and philosophy in the British firmament, were blotted out there would only be a partial eclipse, for would not Hunter, Harvey, Sydenham, Jenner, Simpson, and Lister present a resplendent galaxy? He pointed out that the present gathering was almost a cosmopolitan one. International comity had always prevailed in the medical profession, for disease knew no distinction of country or race and was the common lot of humanity. In the face of a ubiquitous foe it was natural that the confraternity of the healing art should be undivided. The recognition of English talent and experience on the part of the late Emperor of Germany, the consideration shown by the British sovereign to the eminent bacteriologist Professor Robert Koch, and the action of the United States in calling to its counsels British experts in tropical medicine upon the threatened invasion of yellow fever, were convincing proofs of the international harmony which existed with regard to the prevention of disease. The Canadians, for their part, were glad in obedience to the unwritten code and by means of this gathering to aid in cementing the tie that already bound the great Anglo-Saxon people to those of the lands of professional culture and erudition—France and Germany.

The President then briefly sketched the early history and subsequent development of the British Medical Association. In the next place he reviewed the progress made in medicine during the last decade. Many years, he said, must be regarded as compressed into the decennium in which Lister and Pasteur, Koch, Metchnikoff and Behring, with genius and untiring energy in quest of truth, solved their mighty problems and gave the world such talismanic words as antisepsis, asepsis, immunity, and serum-therapy. The work of these men proved not only a vast boon to sufferers from accidents and disease but a grand object-lesson to mankind in general and recent years had seen the result in princely gifts bestowed in the interests of science and humanity. An immense amount, however, still remained to be done. It was true that nursing had become a fine art, diphtheria had been largely robbed of its terrors, and, though rampant, was curable, and the mortality of typhoid fever had been reduced one-half. On the other hand, however, the fatality of cancer had steadily increased; tuberculosis, which had been called the white plague, stalked through the land, and the death-rate of infants, owing mostly to intestinal troubles, although not on the increase, was still very high. One almost felt as if the hands of the clock had gone back on the dial of the world's progress when one recalled that at Jenner's centenary the city where his method of vaccination had come into vogue was in the throes of an epidemic of small-pox due to the ignoring of his great discovery. There was yet ample scope for State medicine to ply its persuasive powers until men thought aright about matters which affected the well-being of the community, and the presumed welfare of the individual was not allowed to stand against the weal of the masses. In the matter of compulsory vaccination a true paternalism of the State with the active support of the medical profession should override so-called conscientious scruples. When vaccination was performed under the rules of asepsis, as it always ought to be, and with the use of pure lymph now always to be had, the risk was practically nil. The work of the decade had given the profession itself some new ideas in regard to the mechanical and chemical processes of digestion. It had been shown that the first part of the stomach was a mere receptacle and that the second part was a kind of mill which was perforce the more common seat of mischief requiring surgical treatment. The value of thorough mastication and the necessity of the avoidance of mental states which would divert nervous energy and thereby interfere with the digestion had been shown by Pawlow's studies. A notable work on "Physiological Economy in Nutrition" by Professor Chittenden of Yale University embodied the basis of a change of faith and a new practice. Professor Chittenden had proved incontestably that too much food not only meant loss of vitality in the disposal of it but entailed a positive risk from the resulting toxins ere these products of metabolism were finally got rid of. He had also shown that one-half or one-third of the nitrogenous (protein) food ordinarily taken was sufficient for maintaining the bodily energies, and that this reduced dietary entailed a minimal tax upon the liver, the kidneys, and the digestive tract. A supply of clean pure milk to communities was declared to be one of the greatest boons to humanity and good service in keeping this question before the public had been done by the pædiatric societies in the United States. The warning of Sir Thomas Barlow in 1894 was quoted to the effect that condensed milk, and even sterilised milk, were not efficient substitutes for the natural food of the infant and that infantile scurvy might be caused by their sole use. The marked increase in the debt which medicine owed to physiology and physiological chemistry was acknowledged and a grateful tribute was paid to Sir Victor Horsley for his researches in physiology. With the growth of more exact knowledge of the causes and nature of disease there had come more faith in the natural powers of the human body and in the value of the aid which could be given by nursing, dieting, &c. The discovery that pneumonia was always a septicæmic disease and that its specific microbe was present in the blood gave the clue to its prevalence and high mortality—greater indeed, than of yore, doubtless owing to the large and increasing percentage of dwellers in cities and towns. A protective and curative serum or "vaccine," as in the case of diphtheria or typhoid fever, was the hoped-for remedy. The discovery of a specific microbe in cerebro-spinal meningitis, the recognition of its mode of entrance into the system through the mucous membrane of the nose and throat, and the trial of repeated lumbar punctures and injections of diphtheria antitoxin with uncertain results, were features of interest in this serious malady which, by the way, was not so fatal as some supposed. The discoveries that the infections of yellow fever and malaria were carried by flies were reviewed and tributes were paid to Lazear of the American commission and Myers of Liverpool, who fell victims to the deadly diseases which they were investigating and might well be said to have given their lives for the good of others. That their labours had not been in vain was shown by the success with which the recent plague was stamped out and Havana and other pest centres had secured exemption. In conclusion, the President said that preventive medicine as a result of the decade's work alone gave sure promise of saving more lives and sparing more misery than could be accomplished by a treaty of universal peace.

A vote of thanks to Dr. Reeve was proposed by Dr. H. BARNES (Carlisle) and seconded by Dr. T. G. RODDICK (Montreal), while Mr. FRANKLIN and Sir JAMES BARR proposed a vote of thanks to the Mayor for the civic reception. The meeting was then adjourned till 8.30 P.M. At the adjourned meeting, which was held in the Convocation Hall, the Address in Obstetrics was delivered by Dr. W. S. A. GRIFFITH on the Teaching of Obstetrics.[1]

WEDNESDAY, AUGUST 22ND.

The second general meeting was held to-day at 2.30 P.M., when the Address in Medicine[2] was delivered by Sir JAMES BARR on the Circulation viewed from a Peripheral Standpoint. The meeting was adjourned until 8.30 P.M., when Sir VICTOR HORSLEY delivered the Address in Surgery[3] on the Technique of Operations on the Central Nervous System.

FRIDAY, AUGUST 24TH.

The final general meeting was held this afternoon at 2.30 P.M., and was fairly well attended, though members of the Congress had already begun to melt away.

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[1] THE LANCET, August 25th, p. 490.

[2] THE LANCET, August 25th, p. 479.

[3] THE LANCET, August 25th, p. 484.

THE SECTIONS.

MEDICINE.

TUESDAY, AUGUST 21ST.

The Section, which was very largely attended, met under the presidency of Sir THOMAS BARLOW (London), who in his introductory remarks referred to the honour of the position of president and to the generosity of the Canadian members of the section in the large share of the time at their disposal which they had allotted to the visiting members.

A discussion was then opened by Dr. PERCY M. DAWSON (Baltimore) on

Blood Pressure in Relation to Disease.

He dealt with certain physiological considerations in regard to blood pressure, emphasising some points which are often overlooked and bringing forward new work. The physiological problems involved in blood pressure offered a wide field for discussion; it was necessary therefore to limit his observations to certain selected topics. At the outset he proposed to define certain terms in order to avoid the confusion resulting from the use of the term "blood pressure" without a qualifying adjective. Careful definitions, illustrated by diagrams, were given of systolic blood pressure, of diastolic blood pressure, and of the pulse pressure, the last being the difference between the other two. It was further stated that applying the results obtained in artificial schemata of the circulation the change in pressure in the aorta during a cardiac cycle was proportional to the change of velocity in the vessel during that time, and Dr. Dawson concluded from his experiments that the pulse pressure might be taken as an index of the systolic output of the heart. Considering the work of the heart, this could be represented by the formula $W = MgH$, where W = the work, M represents the output of the heart, g the force of gravitation, and H the mean pressure in the aorta. The mean pressure in the aorta could be estimated by taking the sum of the diastolic pressure in the brachial artery and one-third of the pulse pressure in that vessel; therefore in this determination the only technical proceeding involved was the estimation of the pressures in the brachial artery. Dr. Dawson indicated the essential requirements of a good instrument for this purpose and emphasised the necessity of determining both the systolic and diastolic blood pressures and of their relation to one another, the difference between them affording the measure of the pulse pressure.

Dr. G. A. GIBSON (Edinburgh) contributed to the discussion a paper on

Clinical Methods of Investigating the Blood Pressure.

He first outlined the various factors in keeping up the blood pressure which should be kept in mind—viz., the initial pressure or energy of the heart, the peripheral resistance (especially that of the splanchnic area), the elasticity of the vessels, the amount of blood in circulation, and the viscosity of the blood. He regarded the so-called *tactus eruditus* as antediluvian and antiquated, and no more to be relied on than the sensations obtained by the hand laid upon a patient's skin would be taken as a gauge of the temperature of the body in pyrexia. He stated as his conviction after 30 years' clinical experience that mere estimation of blood pressure by means of the fingers goes for but little, and that the observation of alterations in blood pressure could only be made by modern instruments. He pointed out that the first observations were made by Vierordt by means of a sphygmograph 51 years ago but that the first noteworthy work on the subject was that of von Basch 25 years ago. He went on to describe the various forms of sphygmomanometer and to classify them according to the manner in which they acted or in which they were applied. The various forms were then criticised and in the case of those encircling the arm the importance of the use of a broad band was insisted on. The instruments of Riva-Rocci and of Janeway gave both systolic and diastolic pressures but Dr. Gibson had found that the only instrument which could be relied upon to give both these values accurately and graphically was the sphygmomanometer of Erlangen, of which he spoke in most enthusiastic terms. The normal limits of these values were in normal persons: for systolic pressures, 90–140 millimetres of mercury; for diastolic pressures, 60–110 millimetres. The influence of various conditions upon these values was described. The effect of posture was so marked that observations should always be made with the patient in the horizontal position; moreover, the time at which the observations were made should be recorded, since the pressures were highest in the morning, although an afternoon rise occurred as well. The influence of food and of occupation had also to be taken into consideration. The observations ought in all cases to be recorded on blood pressure charts.

Sir WILLIAM H. BROADBENT (London) dealt with

The Clinical and Therapeutical Indications of Morbid Blood Pressure.

He differed from Dr. Gibson in regard to the investigation of the pulse by the finger, maintaining that ultimately they would have to rely on the *tactus eruditus*, and further that the real place of the instrumental investigation was in the education of the finger. He referred to the importance of the study of the conditions in the capillaries in regard to questions of blood pressure—notably the intracapillary pressure, the viscosity of the blood, the cohesion between the blood and the capillary walls, and the permeability of the capillary walls. The blood-vessels and their nerves were the servants of the tissues and the variations in pressure and in calibre were due to the requirements of the tissues. The chemical variations in the blood in the capillaries were also of importance in regard to capillary transudation. It was necessary to consider blood pressure from two aspects—first, as it exists in the capillaries, and secondly, in the arterial circulation. It was by the radial pulse that they could estimate clinically the blood pressure on the arterial side of the circulation. Sir William Broadbent then gave an account of the characters of the pulse and the blood pressure as estimated by the finger in various conditions, and pointed out the importance of determining whether the heart or the peripheral resistance was concerned in producing a given rise or fall in the blood pressure; he thought that instrumental indications must always be confirmed and extended by examination of the heart. Various illustrations were then given, among them the lowered blood pressure of pyrexia, in which, in spite of the increased frequency of the heart's action, blood pressure fell because of the diminished resistance at the periphery. The therapeutic indications consisted in the application of the principles enumerated—viz., in the determination of the part played by the heart and the peripheral resistance respectively, and the administration of appropriate measures, such as cardiac tonics in the former case or of nitrites or calcium salts in the latter. The influence of diet, of water drinking, and of mercurials was also considered.

Professor T. CLIFFORD ALLBUTT (Cambridge) then contributed to the discussion a paper on

The Relation of Blood Pressure to Arterial Sclerosis.

He first wished to indicate three points of importance in regard to his own work—viz., that his observations of blood pressure were nearly all made from 10 to 12.30 in the morning, that they were made in his private practice, and that they were invariably made after the ordinary examination of the patient was completed and the circulation therefore more quiet. Arterial sclerosis was not the name of a clinical condition but was rather a term pertaining to morbid histology. Arterial sclerosis was found in a variety of conditions and he recognised three classes or groups—viz.: Class 1. The toxic cases—chiefly in certain infections. The blood pressure varied in this group; in some, as in those cases due to syphilis, it was not raised, while in others, as in lead poisoning, it was increased. Class 2. The hyperpietic group; in these cases there was considerable arterial stress and a large proportion of the cases were the subjects of granular disease of the kidney. Class 3. The involutionary group; chiefly due to senile degradation and associated with trophic or mechanical causes. The blood pressure in these cases only rises to the quasi-normal standard of the age of the individual. These various groups of causes might be combined. Professor Allbutt, having referred to the important work of Traube, von Basch, and Potain in building up our clinical knowledge of arterial sclerosis, outlined his own observations which had led him to the conclusion that high pressure and arterial sclerosis were not a measure of one another, and that arterial sclerosis had little effect in raising blood pressure. He had employed the term "hyperpiesis" to indicate prolonged high pressure, while the hypertrophy of the muscular coat which occurs had been called hypermyotrophy, this latter being a readjustment to counteract the tendency to dilatation of the vessel. Hyperpiesis itself was not a disease but a mechanical adjustment to a diseased condition. In hyperpiesis two different states of the radial artery were found; one in which there was a small straight vessel, and the other with a laxer, more tortuous "leathery" artery. In regard to prognosis in the involutionary cases it was good in regard to length of life, whatever in the course of time might be that diminution of vivacity and adventure which elderly men were pleased to interpret as mellow conservatism, and the tolerant sagacity of experience. The prognosis in the hyperpietic cases was *most perilous. Professor Allbutt strongly* emphasised the importance of the instrumental investigation of the pulse.

Dr. J. Mackenzie (Burnley) contributed some remarks illustrated by pulse tracings on some forms of heart failure consequent upon long-continued high arterial blood pressure. He referred to the five properties of heart muscle described by Gaskell—viz., tonicity, excitability, rhythmicity, contractibility, and conductivity—and illustrated his contentions by reference to a series of cases of arhythmia. He forcibly pointed out the value of the pulse indications in respect of treatment.

Dr. J. Lindsay Steven (Glasgow) supported Sir William Broadbent in his contention that the trained finger was the ultimate appeal in clinical work. He recognised two chief varieties of increased blood pressure, (1) temporary and recurrent, due to errors in diet, mental excitement, constipation, and effort; and (2) a continuous or persistent form associated with chronic Bright's disease, especially the small red kidney. Dr. Steven differentiated between atheroma, which was a focal disease of the aorta and the arteries of the brain, and arterio-sclerosis, which was a generalised affection, especially of the medium-sized vessels. In his opinion high arterial tension might be the result of arterio-sclerosis, but was never the cause of it.

Professor Alexander McPhedran (Toronto) referred chiefly to clinical methods. He supported Dr. Gibson in his contention that the *tactus eruditus* was not trustworthy. He *recommended that the* instrumental determination of blood pressure should be made after quiescence of the patient and at the end of the interview. He had observed a case in which a man was waterlogged to the waist in whom the pulse did not seem to the finger very high, but when measured by a sphygmomanometer it proved to be 280 millimetres of mercury, and it was only little reduced by nitrites. *On the* other hand nitrites yielded favourable results in cases due to arterial spasm.

Dr. G. W. McCaskey emphasised the importance of the factor of peripheral resistance, and the effect of the nitrites in relieving increased *pressure* due to spasm and of their value in diagnosis.

Dr. Alfred Stengel (Philadelphia) read a paper on

Some Clinical Manifestations, Visceral and General, of Arterio sclerosis,

which was taken as part of the general discussion. He had found continuous fever, lasting over considerable *periods* of time, in arterio-sclerosis without any local lesion to account for it, such as pyelitis or other infection. He regarded the fever as possibly due to the active disorganisation of the tissues of the vessel wall, on the analogy of ferment fever. He referred to the occurrence of fever in aneurysm and in cases of acute aortitis. He had also observed suggestive symptoms in abdominal arterio-sclerosis. The patients suffered from repeated attacks of cramp-like pain, with marked intestinal distension and constipation, the attacks sometimes proving fatal, when atheroma and even thrombosis of the mesenteric vessels were found at the necropsy. Max Buch of Vienna had recently described 25 cases of this kind and regarded some of them as due to arterio-sclerosis of the abdominal vessels, others as an abdominal manifestation of angina pectoris. The ulceration of the intestine not infrequently seen in chronic nephritis Dr. Stengel was of opinion is associated with the arterial disease existing in that condition.

Dr. William Ewart (London) spoke on the relation of chronic disease of the arterial wall to the pathological and physiological factors of increased arterial tension—notably of the intermittent factor of muscular work and of the fatigue toxins associated with it and of the continuous factor of the toxins of disease or of disturbed metabolism. He referred to the importance of adequate sleep in regard to arterial spasm and strain, allowing the *vessels to* relax and lessening the work to be done.

Wednesday, August 22nd.

A joint discussion was held with the Section of Physiology on

Over-nutrition and Under-nutrition, with Special Reference to Proteid Metabolism.

The discussion was opened by Professor Russell H. Chittenden (Yale) who pointed out that at the outset they were confronted with the inquiry as to what were the normal requirements of the body for food. In a general way it might be said that a man required enough food to establish physiological and nitrogenous equilibrium and sufficient to maintain that strength of body and mind which was essential to good health, and to afford the highest degree of physical and mental activity with the smallest expenditure of energy, and at the same time to preserve and heighten if possible the ordinary resistance of the body to disease-producing organisms. The smallest amount of food which would secure these ends would be, in his opinion, the ideal diet. Certain dietary standards had been generally accepted throughout the civilised world based largely upon the general experience of mankind, and the experiments of Voit and his pupils had apparently lent scientific authority to these. In the present discussion it would be profitable to consider whether the ordinary dietary standard conformed to the conception of the amount of food necessary to effect the ideal conditions just described, confining attention to the proteid or nitrogen requirements and considering the Voit standard of 118 grammes of proteid daily for the ordinary man of 70 kilogrammes weight. *This* amount was practically 105 grammes of absorbable proteid or 16 *grammes* of nitrogen, which was equivalent to 1·5 grammes of proteid per kilogramme of body weight. Physiologists usually considered that when an organism was in a state of nitrogenous equilibrium the body as a whole and its separate organs were being duly nourished as regards nitrogen. The maintenance of a nitrogenous equilibrium at a low level of intake of nitrogen might be of interest as affording a clue to the minimum quantity of proteid food necessary to repair the nitrogenous waste. It must be admitted as possible that some excess of proteid food over and above the smallest amount necessary to establish nitrogenous equilibrium might be desirable for the maintenance of good health, although *there* was no conclusive evidence of this. Many experimenters, among them Hirschfeld, Kumagawa, and Breisacher, had studied the effect of lowered nitrogenous intake *for* brief *periods of* time, and had demonstrated that it was quite possible to maintain a nitrogenous equilibrium on a diet containing only one-half the amount of proteid food in the Voit scale. *Professor Chittenden had* carried out experiments over extended periods of time in order to meet the criticism that the time was too short to admit of accurate conclusions being drawn. In his own work five professional men were fed for periods of from six to nine months on an average daily *metabolism* of from 5·4 to 8·99 grammes of nitrogen—i.e., 34 to 56 grammes of proteid per day. In three of the cases, individuals of different body weight, there was a close agreement *in the amount* of nitrogen required, which was 0·1 gramme, 0·093 gramme, and 0·102 gramme respectively per kilogramme of body weight, the other two cases requiring somewhat more—viz., 0·14 and 0·139 gramme of nitrogen per kilogramme of body weight, which was not more than half of the Voit standard. Moreover, in these experiments the non-nitrogenous food was *not* increased in quantity. Further, to meet the criticism that such diets could not be borne indefinitely one of the subjects had lived at that level for four and a half years, and, as he believes, with great gain to himself. Similar results had been obtained in 11 soldiers from the hospital corps of the United States army, also with a third group of men, eight in number, mostly athletes, in whom the nitrogenous intake was reduced to from 0·108 to 0·134 gramme per kilogramme of body weight per day. Professor Chittenden was of opinion that 0·1 gramme of proteid capable of metabolism per kilogramme represented the minimum proteid requirement, *but it* would probably be advisable to adopt a standard somewhat above this figure and to *give from 50 to 60* grammes of absorbable proteid to a man of from 60 to 70 kilogrammes weight—i.e., a reduction of about 50 per cent.

Professor W. D. Halliburton (London) said that the large attendance at the discussion was the best evidence of the importance of the subject. In general he was in agreement with most of Professor Chittenden's conclusions, and there could not be any doubt that among meat-eating nations many people eat too much and harmfully in excess. He pointed out that observations on animals in this regard though suggestive were not conclusive—e.g., the dog, an animal with high proteid intake, and the ox, an animal with a low one, were both strong animals. The special feature of Professor Chittenden's observations was the fact that they were made on the human subject and over prolonged periods of time. He instanced the dietary of the poor in large cities and the low nitrogenous intake in vegetarian nations, and stated that it was maintained that such people showed less resistance to privation and to bacterial invasions than meat-eating people. He had been interested to read that Lafcadio Hearn, in writing of the Japanese, attributed their recent vigour and success to their tendency to give up vegetarianism and take larger quantities of animal food. Professor Halliburton further instanced the effect of overfeeding in the open-air treatment of pulmonary disease and in the rest cure for neurasthenia. Proteid in the body served two chief purposes; first, to repair waste of the tissues, and secondly, to act as a source of energy just as fats and carbohydrates do. He was of opinion that if we reduced the amount of proteid to that minimum necessary to subserve the first of these functions we should be dangerously near the margin. He quoted some views of Dr. Leathes who had pointed out that in infants ten times the minimum quantity of nitrogen necessary to repair waste was taken in the diet, even allowing for growth, and therefore asked if it would be physiological for the adult to live too near the minimum.

Dr. OTTO FOLIN (Waverley, Mass.) considered that the important question was to consider the validity of the standards of diet which had prevailed for the past two generations based on the work of Voit and his pupils. Their conclusions had been repeatedly disposed of and yet the Voit standard had remained, the reason being that there was a conviction that the more effective portions of mankind indulged in a diet of this kind, and thus Voit's experiments lent scientific dignity to a popular belief. Statistics were often invoked in support of the contention that the majority of people adopted a diet conforming to the Voit standard, and that greater consumption of food was associated with greater productive capacity. Such statistics required scientific examination since they proved too much. Nothing would be more conducive to advance in this field of work than a frank acknowledgment of our uncertainty and ignorance in regard to the problems of nutrition, while to bring forward the general experience of mankind, a special case of the survival of the fittest, as an argument in favour of a high nitrogenous intake was as rational as to invoke the same argument in support of the use of alcohol, tobacco, tea, and coffee. The optimum proteid diet would probably be between the two extremes, but at present there were no data to enable them to determine this amount, and it would be wise to recognise this.

Dr. ROBERT HUTCHISON (London) contended that the problems of nutrition could not be solved by either the physiologists or the physicians alone, but that it required the coöperation of scientific and clinical workers. The physician and the physiologist approached the matter from entirely different points of view: the physiologist dealt with the normal, ideal or average, whereas the physician with the abnormal, with idiosyncrasies, and with the diseased organism. The physiologist asked what was the proteid minimum, the physician required to know what was the proteid optimum, and these were not necessarily the same. He fully accepted Professor Chittenden's results as regards the minimum and paid a tribute to the American workers in the investigation of nutrition, but he would not accept any suggestion that the optimum and the minimum were the same. It was of interest to notice that in the body there was a tendency towards a reserve, and he would quote the French proverb, "*Pour avoir assez il faut avoir trop.*" It would be of interest in the future to ascertain in persons taking a lessened nitrogenous diet the opsonic index in regard to various disease-producing organisms and the way in which such individuals passed through an acute illness. At present the physician was perplexed by the various statements made in regard to the relation of various diets to disease. In regard to the low nitrogen diet it was stated that gout and rheumatism were relieved by it, while others maintained that a vegetable diet would effect the same end, while recently another school had maintained that one of the main faults in our diet was an excess of fat and carbohydrate rather than of proteids. He further discussed the question of over-nutrition in regard to the fats and pointed out that under the conditions of civilised life there was less use for fat than in the savage state of man. Another point which physiologists were liable to overlook was that of the individual peculiarities or idiosyncrasies. It was important for us to know whether the fact that some persons remained thin on large diets while others could not reduce their fat in spite of very small ingestion of food might not be due to some individuals being more economical machines than others.

Professor L. LAPICQUE (Paris) referred to the effect of climate on diet.

Dr. C. B. RAMARAO (Madras) gave his own personal experience. As a Brahman and a member of a community prohibited from partaking of animal food, he lived on an entirely vegetarian diet and was of opinion that vegetable proteins could be as effectively digested and assimilated as those of animal origin. He instanced the fact that thousands of his countrymen lived in perfect health, carrying out good mental and physical work in their own spheres, who had never touched animal food.

Sir JAMES GRANT (Ottawa) maintained that more people died from excess of food than from excess of alcohol, but stated that in the cold climate of Canada more food material was required than in the Tropics.

Sir THOMAS BARLOW congratulated Professor Chittenden and expressed the gratitude of physicians to him for his elaborate and exhaustive researches The results obtained demanded a reconsideration of the whole subject and would doubtless eventually modify the customs of the profession and the laity. There were two or three points which would occur to practising physicians as requiring solution. One was the reason of the marked improvement resulting in the condition of a child fed on cereals and milk for two years when meat was added to the dietary. Another was the rapid improvement in the process of convalescence from many diseases when meat was given to the patient, and a third was the beneficial effect of overfeeding in pulmonary tuberculosis and neurasthenia. Professor Chittenden recommended a diet which was above the minimum and he (Sir Thomas Barlow) would ask whether there were not a place in the economy for an excess of proteid above the minimum requirements.

Professor CHITTENDEN, in reply, thought that one of the objects achieved by the discussion was that a clear appreciation had been obtained of our lack of knowledge regarding the fundamental problems of nutrition. One of the aims of his work had been to discover whether data based upon the general experience of mankind were in absolute harmony with the physiological requirements of the body. It was also possible that some of the ills of mankind might be ameliorated by living nearer to the low level of proteid metabolism. In regard to the improvement brought about by meat added to the diet of children and convalescents, he suggested that the extractives of meat might play a part in this. In referring to the difference between animal and vegetable proteids in diet it must be confessed that they knew little. That there was a great difference in their constitution was certain, since a vegetable proteid would yield as much as 37 per cent. of glutaminic acid on decomposition, whereas meat proteids yielded only 11 per cent.

Dr. L. F. BARKER (Baltimore) read a paper on

Amino-acids and Metabolism.

He pointed out that the application of chemical study to the problems of biology had yielded great results and especially of late in regard to the structure of proteids All consisted of long chains of relatively simple bodies called amino-acids into which they could be split. More than a dozen of such bodies had been obtained from egg albumin. The amino-acids could, moreover, be artificially chained together and bodies were obtained with characters closely approaching those of proteids—especially the peptones. There were both mono- and di-amino-acids and some 20 of these bodies were now known in the laboratory, among them glycocoll, leucin, tyrosin, lysin, and arginin. A study of the amino-acids present in various forms of proteid food revealed the interesting fact that a human being took about the same quantity of these bodies, whether fish, white meat, or the ordinary meats be taken. The chemist by synthesis was now preparing from these a series of substances called peptides—viz., dipeptides, tripeptides, and polypeptides. It was now recognised that the effect of ferment was to break proteids down into simpler and simpler bodies, the reason being that every animal possessed its own specific proteids and used other proteids in order to build up its own waste; therefore, these proteids were broken down into these amino-acids and then re-united to form the specific proteids of the animal's body. There was now evidence that each cell of the body had to take the serum proteids and break them down again in order to build up its own specific proteids. The question arose as to the fate of superfluous amino-acids. They were oxidised and got rid of as urea. The study of these problems was likely to throw considerable light upon some forms of disordered nutrition, such as cystinuria and alkaptonuria.

Dr. W. B. THISTLE (Toronto) read a paper on

The Treatment of Typhoid Fever.

He discussed the possibility of limiting or preventing the intestinal lesions of the disease and detailed his own practice of giving purgatives and antiseptics throughout the course of the disease. The suggestion made was that purgatives insured increased elimination of the typhoid organisms and their toxins and that therefore they were likely to be of use as in uræmia and lead poisoning. He gave a few grains of calomel and some salol. In his opinion purgation, especially early in the course of the disease, was of great importance.

Dr. W. CALWELL (Belfast) avoided giving purgatives to typhoid fever patients in any form. He quoted some statistics of 150 consecutive cases, showing that the mortality in cases with constipation was very slight, whereas in cases with diarrhœa it was much greater.

Dr. T. M'CRAE (Baltimore) pointed out that the view that typhoid fever was to be regarded as a blood or general infection was gaining ground and that the intestinal lesions were on this supposition to be looked upon as secondary, and as a consequence purgatives were hardly likely to be of value in diminishing the intestinal ulceration. As regards the use of antiseptics he was of opinion that they were of no value because it was impossible to give sufficient quantities to exert any beneficial action. In his experience the elimination of organisms and toxins took place much more through the kidneys than by the bowel, and the good effects of bath treatment were probably due in no small degree to the increased elimination induced by it through the kidneys.

Dr. W. H. NEILSON (Milwaukee, Wisconsin) referred to a case of typhoid fever treated by himself in which severe intestinal hæmorrhage occurred. He induced constipation over a period of nine days and yet obtained no evidence of intoxication from intestinal absorption. The patient recovered.

Professor MCPHEDRAN opposed the use of purgatives, insisting that typhoid fever was a general disease.

Dr. BARKER pointed out that after recovery from typhoid fever large numbers of bacilli might remain in the body and that therefore the mere number of organisms present in the intestine could not be regarded as of great importance in regard to the disease.

Dr. J. H. HAMILTON (Erin, Ontario) was of opinion that purgatives were of value but that they should only be given early in the disease. He also believed in the use of intestinal antiseptics.

SURGERY.

WEDNESDAY, AUGUST 22ND.

The special discussion on

The Surgical Treatment of Ascites Secondary to Vascular Cirrhosis of the Liver

was opened by Mr. SINCLAIR WHITE (Sheffield). He said: Surgical intervention for the relief of cirrhotic ascites is based on well-known anatomical and pathological data. Normally there are four sets of anastomotic vessels uniting the systemic and portal venous systems. These comprise: 1. Veins running in the falciform and round ligaments of the liver—the so-called accessory portal system of Sappey—which connect the portal vein with the epigastric, the internal mammary, and the diaphragmatic veins. 2. The anastomoses between the gastric and œsophageal veins. 3. Veins between the superior and middle and inferior hæmorrhoidal veins. 4. Retzius system of veins situated in the retro-peritoneal tissue, and especially well developed behind the pancreas, the transverse portion of the duodenum, and the vertical portions of the colon. The enlargement of the normal anastomotic veins occurs with great constancy in cirrhosis of the liver and is occasionally associated with newly formed veins running in adhesions between the viscera drained by the portal vein and the abdominal walls. Pathologists have long been familiar with the fact that typical cases of cirrhosis of the liver may run their course to a fatal issue without the advent of ascites provided the collateral circulation is well developed. Drummond and Talma, impressed by the part played by the veins of new formation in warding off ascites, conceived, independently of each other, the idea of creating adhesions between the abdominal viscera and the parietes. Of these the great omentum, both by reason of its vascularity and flexibility as well as by nature's example, appeared to be specially adapted for the purpose and operative procedures for the relief of ascites, however they may differ in detail, always include fixation of the omentum to the abdominal wall. The operation was first performed, at Talma's suggestion, by Van der Meulen in 1889, but with a fatal result. The first successful case was operated on by Rutherford Morison in 1895. This patient lived for two years without recurrence of the ascites. Death followed 48 hours after a trivial operation for ventral hernia and a post-mortem examination revealed the existence of numerous new veins running between the liver, the spleen, the omentum, and the abdominal walls.

In regard to *pathology*, the chronic inflammatory changes induced by the poison, whether it be alcohol or some other agent, lead to degeneration of the hepatic cells and proliferation, with subsequent contraction of the connective-tissue framework of the liver. The latter in turn interferes with the circulation of the blood through the hepatic terminals of the portal vein. Side by side with these pathological changes in the liver there may be developed a more or less extensive chronic peritonitis, and when the incidence of the poison is specially marked on the peritoneal covering of the liver we get perihepatitis. So far there is general agreement among pathologists, but as to the immediate cause of ascites in cirrhosis of the liver two widely divergent opinions prevail. The commonly accepted view is that it is largely a passive effusion of blood serum; that it appears in cirrhotic cases when the enlargement of the collateral circulation fails to keep pace with the ever-increasing portal constriction; that while contraction of Glisson's capsule is the principal cause of obstruction it may be supplemented by partial or complete thrombosis of the portal vein; and that systematic circulatory defects, such as valvular lesions of the heart, may aid the local causes of blood stasis. On the other hand, Hale White, Rolleston, and others reject the doctrine of passive effusion, giving as their most important reason for so doing the negative results obtained in experimental ligation of the portal vein in animals. They allege that the peritoneal dropsy of uncomplicated cirrhosis of the liver is due to the presence of toxic substances in the blood; that these bodies possess lymphagogue properties and are the outcome of defective metabolism on the part of the liver, whose damaged cells are no longer able to arrest and render harmless poisons absorbed from the alimentary canal, or possibly produced elsewhere. They further allege that ascites appears only in the terminal stage of the disease and insist that operative cures in ascites occur only in cases where the peritoneal effusion is the result of chronic peritonitis and perihepatitis. Looking at the subject from a practical standpoint, theoretical considerations must give place to ascertained facts, and it is impossible to ignore the testimony of numerous competent and trustworthy observers who by sight and by touch have verified the existence of well-marked cirrhosis of the liver in cases that have, after operation, not only been cured of the ascitic condition but have for years enjoyed a fair measure of health. Moreover, numerous instances have occurred where a subsequent laparotomy for some other condition has enabled the operator to examine the remote effects of epiplopexy on the collateral circulation and to testify to the remarkable increase of the anastomotic vessels which it produces. The evidence thus afforded, conjoined with post-mortem observations on cases that have run their course without the appearance of ascites, leaves no doubt that stasis of blood in the portal system is the most important factor in the production of cirrhotic ascites.

The operation involves more or less traumatism to the liver, the omentum, and the peritoneum, and, however carefully done, causes some degree of shock. It should therefore, apart from special objections, not be performed on old or on very feeble patients. It is contra-indicated in Bright's disease and in diabetes, but the temporary presence of a small amount of albumin or sugar in the urine may be ignored.

A scanty excretion of urine is nearly always associated with ascites and need not weigh against operation, but if the total amount of urea is very greatly reduced it would, according to some writers, militate against operation on the ground that the liver being the chief centre of the manufacture of urea a very much reduced output indicates advanced hepatic disease. Persistent jaundice, even if slightly marked, and mental hebetude are two most ominous symptoms and the presence of one or both should preclude surgical interference. The same observation applies to serious organic disease of the heart and lungs. Cirrhotic patients are unduly prone to tuberculous disease and special care should be exercised to exclude phthisical cases. Acholia and urobilinuria, if pronounced, are excluded by Talma in his list of objections to operation. He also looks on well-marked xanthoma as an unfavourable sign. The ascites of atrophic cirrhosis is said to be less hopeful than that associated with the hypertrophic type but an analysis of the cases I have tabulated fails to show this. In all cases tapping should be resorted to once or oftener before proceeding to operation. In a small minority of cases this alone will effect a permanent cure of the ascitic condition and in all it will help the operator to gauge the personal equation of his patient.

As to *operative details*, omental fixation enters into every recognised method and is universally conceded to be the most important step in the operation. Additional procedures consist in "rawing" the peritoneal surfaces of the liver and spleen together with the opposed peritoneum lining the under surface of the diaphragm and anterior abdominal wall, with or without anchoring sutures. A variation of the process in respect of the spleen is to create a rent in the parietal peritoneum and effect a subperitoneal displacement of this viscus. Hepatopexy can be easily and rapidly performed through the incision required for fixing the omentum but the spleen is less accessible through this opening and the steps necessary for dealing with it involve so much disturbance that its inclusion in the operative programme is not desirable. If for any special reason splenopexy should be deemed necessary it would be better to perform it through an independent opening and, by preference, on a subsequent occasion. Of the methods of treating the great omentum two in particular have received special recognition. One, the method described by Morison, is to fix its anterior surface by numerous point sutures to the opposed parietal peritoneum previously freshened by vigorous gauze rubbing. The other, devised by Schiassi of Bologna, aims at placing the omentum between the parietal peritoneum behind and the posterior surface of the abdominal muscles in front.

The *results of operation* are as follows. Professor Monprofit, in an exhaustive paper presented to the French Surgical Congress in 1904, tabulated 224 cases of the operation collected from various sources. Of these 84 died within one month of the operation, equalling a mortality-rate of nearly 38 per cent. The writer had collected particulars of 227 cases operated on. Of these 33 per cent. died within one month of the operation, 15 per cent. were failures, 13 per cent. were improved, and 39 per cent. were cured of the ascitic condition. The frequency with which peritonitis occurred after operation suggested that in cirrhotic ascites the resistance of the patient to bacterial invasion was lessened.

Mr. G. Grey Turner (Newcastle-upon-Tyne) referred to the unavoidable absence of Mr. Rutherford Morison. A record was presented of all the cases that had been operated upon in Newcastle-upon-Tyne since Dr. Drummond and Mr. Morison had their first case in 1894. In all there had been 16 operations and of this number five patients died within a few days, three from pneumonia, one from uræmia, and one from cholæmia. None of these fatal cases had been properly selected. Of the 11 that survived the operation five had subsequently died, at periods varying from four months to six years and three months after operation, thus leaving six patients to be accounted for, and of this number the after-history of five was presented. One patient was well seven years and five months after operation, another was alive but with recurrence of symptoms three and a half years after operation, and three were perfectly well two years and seven months, 12 months, and seven months respectively after operation. 16 cases with only five patients alive 12 years from the date of the first operation did not appear to be a good record, but it was pointed out that of these 16 cases only six fulfilled the conditions insisted upon by Drummond and Morison, and of these properly selected cases three were alive and well seven years and five months, 12 months, and seven months after operation; two lived in good health for five years and two years respectively, in both cases death being due to accident or intercurrent affection; and one case could not be traced. Mr. Turner insisted that the success of the operation depended upon the proper selection of cases, only those suffering from alcoholic cirrhosis who were free from other visceral complications and who had survived one or two tappings coming into this category. Many cases of ascites not due to alcoholic cirrhosis had been cured by the operation, but it was contended that in arriving at a proper estimate of the operation as originally suggested these ought to be excluded, for many of the fatal cases came from this group. In the technique stress was laid on the importance of continuous drainage and strapping. One of the most important questions for discussion was the influence of the operation on the cirrhosis itself.

Mr. John Lynn Thomas (Cardiff) read a paper on

Enucleation of the Prostate.

The revival of prostatectomy, he said, had proved a remarkable success and as a consequence the last five or six years had seen a sufficient number of operations of the kind from which, as data, to discuss the respective merits of the two main methods of surgical procedure. As this comparison was the point of greatest practical interest he would therefore proceed rapidly to its consideration after a few preliminary remarks upon the diagnosis of hypertrophied prostate. For diagnostic purposes there were only two means by which the character of an enlarged prostate could be determined before operation: (1) palpation per rectum and (2) investigation of the length of the urethra. Where no elongation of the urethra was present the cystoscope might also offer a possible third method of examination but he had not found its use of value in ordinary cases where elongation occurred. Proceeding by these methods it was possible to exclude certain cases of enlarged prostate as unsuitable for enucleation. In what circumstances should the prostate be enucleated? In dealing with this question Mr. Thomas expressed himself in favour of operation as soon as the patient was compelled to face the risks of "catheter life." Notwithstanding a great improvement in the directions now given to patients entering upon "catheter life" the risks still remained so great as considerably to exceed those of immediate operation. Proceeding to a comparison of the results obtained by perineal and suprapubic prostatectomy respectively, Mr. Thomas referred in detail to a large series of statistics which, with the assistance of Mr. A. Clarke, he had been able to compile from English, American, and European records of cases. A total of 677 perineal operations provided 89·8 per cent. cases of recovery, and a total of 583 suprapubic operations 88·9 per cent. In complete cures, however, the suprapubic method showed a greater percentage, 95·6 per cent. against 81·4 per cent. of the cases of recovery after the perineal operation. Thus, although the perineal method gave 0·9 per cent. more cases of recovery the suprapubic method gave 14 per cent. more cases of complete cure. The advantage of the perineal route would seem to lie in the greater ease of drainage. Difficulties of drainage, however, only made themselves felt in the case of the suprapubic operation when dealing with septic cases. With a septic bladder it became necessary to drain the cavity from which the prostate had been removed by an *additional perineal incision*. Better still, however, was a method more in accord with the canons of general surgical procedure. It was a *most* valuable general principle to avoid operations through inflamed tissues except in cases of necessity. *Deference* to this principle involved an operation carried out in two stages. The first step was the performance of a suprapubic cystotomy, the second, removal of the prostate, this not being undertaken until the parts were restored to their normal condition of asepticity. Free drainage by cystotomy was preferable to irrigation and medication of the bladder through the catheter. As to the technique of the operation Mr. Thomas was in favour of a transverse incision of the skin, &c., with vertical separation of the recti. A silver prostatic catheter was passed into the bladder as a guide during enucleation, and as soon as the viscus was opened a special spoon-shaped retractor was used to elevate the prostate per rectum. Mr. Thomas summarised his remarks in the following series of conclusions:—1. That there is no choice between the suprapubic and perineal methods of enucleation so far as the incidence of mortality was concerned. 2. That either method may be followed by disappointing results, such as stricture of the urethra, urinary or recto-perineal fistulæ, and interference with the sexual functions. 3. That in septic cases enucleation of the prostate should be performed in two stages. 4. That the suprapubic route is more suitable for tumours of the middle lobe, for the removal of calculi, and for the control of hæmorrhage when such complications are present. 5. That the suprapubic route is unsuitable for surgeons with short fingers or flexible nails. 6. That post-mortem evidence fails to justify the contention that enucleation had ever resulted in the complete removal of the prostate. 7. That anatomical evidence was conclusive in demonstrating the impossibility of removing the prostate in one mass without also removing the prostatic urethra.

Mr. GEORGE A. BINGHAM (Toronto) also read a paper on the same subject. He dealt first with the minute structure of the normal prostate, referring in some detail to the structure of the prostatic stroma and its relationship to the glandular elements. Reference was also made to the question of a middle lobe, to the lack of a true capsule, and to the absence of definite lobes. The developmental history of the gland was such as to make evident its purely sexual function. There was no special thickening at the neck of the bladder capable of acting as a specific sphincter. Dealing with the subject of hypertrophy, he emphasised the fact that the majority of prostatic tumours were simple adenomata. In his opinion the normal tissue of the gland was displaced by the new growth and was driven to its periphery, thus giving rise to a pseudo capsule. The process of enucleation was always performed by separation along some line of cleavage between the different strata of this spurious capsule. Discussing the treatment of hypertrophy, he divided the cases into three classes: 1. Early cases where in an otherwise healthy man the only symptom was obstruction to the urinary outflow. Here removal by operation was advised. 2. Very late cases where kidney or bladder complications forbade a formal prostatectomy and yet some surgical intervention was urgently demanded. In such cases the Bottini operation was of value, performed under a local anæsthetic. When the patient's general condition was bad and complicated by the presence of a calculus, either in the bladder or in the prostate, suprapubic cystotomy was advised under local anæsthesia. When the stone had been removed the Bottini instrument was applied under the guidance of the finger in the bladder. 3. Intermediate cases where the general condition was good but cystitis, calculus, incontinence of urine, prolapsus ani, &c., rendered life a burden. Here the radical operation was advised, the choice of route being altogether determined by the conditions present. Thus when the middle lobe alone was involved and the resulting tumour projected into the bladder the suprapubic method was followed. When, however, the mass bulged towards the perineum and rectum the perineal method was chosen. In the performance of these operations it was essential to pay attention to "ante-" and "post-operative" treatment if good results were to be obtained. In conclusion, reference was made to the treatment of shock and uræmia, the most common causes of death, and to the most recent statistics, which showed slightly more favourable results from the perineal method of operation.

The discussion which followed revealed a very decided preference on the part of American surgeons for the perineal route.

Dr. G. E. ARMSTRONG (Montreal) reported

The Successful Removal of the Spleen in a Case of Banti's Disease.

The patient had recovered full health and strength and the blood had returned to practically a normal standard. A very unusual and interesting feature in his case was the incidence of a condition of tetany coming on about 12 hours after the operation. Painful spasms involving the trunk and extremities continued to occur at intervals for about 40 hours, when they ceased completely. Of 32 cases of splenectomy in Banti's disease 23 recovered and nine died—a mortality of 28 per cent. The larger number of cases occurred between 10 and 40 years of age. The recovery in the successful cases would seem to be permanent, with complete relief from attacks of hæmatemesis and apparently an arrest of the cirrhotic changes in the liver and a return of the blood to a normal condition. Attention was particularly drawn to the enormous dilatation in the splenic veins and the alteration in their walls, leading to stasis and passive hyperæmia of the spleen and dilatation of the vasa brevia and œsophageal veins. It was suggested that the changes in the veins might be one of the earliest lesions and possibly secondary to some alteration in the gastric mucosa. The changes in the spleen would then be regarded as secondary to the persistent blood stasis and hyperæmia. Splenectomy was urged as the proper method of treatment. It should be done before the changes in the liver become pronounced.

GYNÆCOLOGY AND OBSTETRICS.

TUESDAY, AUGUST 21ST.

Dr. A. H. FREELAND BARBOUR, the President of the section, delivered some introductory remarks on

The Relation of Gynæcology to the Work of the General Practitioner.

He said that gynæcology as a specialty was sufficiently in evidence in the programme of work of the section and therefore he devoted the few minutes of his introductory address to the relation of gynæcology to the work of the general practitioner. The medical student started with a wrong idea of gynæcology, for which the term "diseases peculiar to women" was in part responsible. Instead of applying the general principles of pathology to pelvic disease he thought that these had a special pathology. There was no more reason to treat gynæcology as a specialty than obstetrics, which was admitted to be part of the work of the general practitioner. A moment's consideration would show that the great majority of gynæcological cases must be at first in the hands of the general practitioner. The recent remarkable development in operative gynæcology had led to the idea that the surgical aspect of gynæcology was gynæcology itself. But that was only one side of it; it had what he might call its medical aspect also. Gynæcology was not a specialty in the same sense as mental disease or even diseases of the eye. When a case of mental disease presented itself the practitioner at once recognised that here was a case which did not belong to him. And the same was largely true of diseases of the eye. Specialism in gynæcology, apart from major gynæcological operations, was more akin to specialism in diseases of the heart or lung, in which, by devoting special attention to affections of one system and gaining a wider experience in it than fell to the general practitioner, the physician had come to be recognised as an authority on diseases of a given system. From this point of view it might be said that the way to the specialist in gynæcology passed through the domain of the general practitioner and that the specialist was to be called in when the general practitioner recognised that he had not the training or experience to enable him to diagnose or to treat successfully his patients. This view of the subject required a higher standard of knowledge than he at present possessed, and they stood at the parting of the ways. Was gynæcology to be relegated to the post-graduate course, to be studied only by those who had a bias towards it? Or was it to be made an integral part of the student's training, so that at its termination he would know at least the elements of clinical gynæcology? From the relation of the diseases of women to obstetrical work, from the reasonable expectation of the general public, from the very nature of the case it seemed to him that the student must be taught and examined clinically. It should be taught in relation to medicine, surgery, and midwifery, the tripod on which the practice of medicine rested. If these three subjects were represented by three circles side by side gynæcology was a fourth intersecting the three. Specialism was a peak in a mountain range and its development was subject to the same law. A broad foundation must be laid for knowledge, remembering that the height of a hill was related to the breadth of its base. Some rose, like Fujiyama, abruptly from the plain, volcanic in nature, produced by a sudden outburst of imprisoned force. Such were the geniuses of the medical profession. More usually, however, a peak was produced by a gradual process—for nature was rarely in a hurry—which led to its appearance as a member of a mountain chain. The specialist was slowly differentiated from his fellows like a peak in the Rocky Mountains.

After the President's introductory remarks, Professor ADAM H. WRIGHT (Toronto) read a paper on

Concealed Accidental Hæmorrhage.

He dealt only with that type of concealed hæmorrhage which occurred in the latter part of pregnancy before the effacement or dilatation of the cervix. Many such cases were overlooked and the condition was more common than was formerly supposed. Five cases had come under Professor Wright's observation and he proceeded to give a clinical picture of the condition, stating that colic was one of the predominant features and that there might be nothing to draw attention to the uterus as the seat of the lesion. The patient was in great danger until the uterus was emptied, but how to empty the uterus was by no means an easy question to settle. Dilatation of the cervix might take as long as two hours and in its attempt the woman might die undelivered. The chief aim of Professor Wright was to show that in a certain number of cases the symptoms were due to shock only and not to loss of blood, and cases were cited to illustrate this view. Reference was made to the treatment by *accouchement forcé*, Professor Wright's view being that it was an extremely dangerous procedure. Treatment by friction, electricity, nitro glycerine, amyl nitrite, ergot, quinine, rupture of membranes, steel dilators, various kinds of dilating bags, and the vaginal plug were all to be avoided. Professor Wright gave morphine for the shock to the extent of one grain in one hour; the physician's aim should be to give the morphine before profound shock had been established. To the first dose of morphine $\frac{1}{150}$th of a grain of atropine was added. The patient's head should be lowered and the body temperature maintained by the external application of artificial heat Salt solution should be administered by high enema. Small doses of strychnine, $\frac{1}{30}$th of a grain per hour, were to be given, but large doses of this drug were exceedingly dangerous. By such means as these the patient was got into a better condition for operation. The operation advised by Professor Wright was vaginal or abdominal Cæsarean section.

Dr. W. S. A. GRIFFITH (London) said that in his opinion the discussion of the treatment of accidental hæmorrhage suffered from being considered apart from that of placenta prævia hæmorrhage, the principles of which were almost the same. Cases might be divided into two groups—those in which the hæmorrhage was little and the danger little, and those in which it was great and the danger great. The first group was common and the second was very rare. The treatment of the second group was that which raised the chief points for discussion, especially in those in which the cervix was tough and undilatable. In this condition Dr. Griffith believed that section of the uterus, especially vaginal, was the best operative method when circumstances permitted it. In cases of multipara with soft dilatable cervix the treatment of Braxton Hicks, bipolar version with normal dilatation, was the safest method and the most easily performed by the general practitioner.

Dr. TEMPLE (Toronto) said that the treatment of accidental hæmorrhage of the concealed variety depended entirely on the gravity of the symptoms. If it occurred at the time of delivery the uterus should be emptied as soon as was consistent with the patient's condition either by version or some other method. If it occurred during gestation and the symptoms of shock were very severe, with the os hard and unyielding, the safest plan was to rupture the membranes, apply a firm pad and bandage over the uterus, give restoratives, and deliver the patient later. He had never seen any case calling for such radical treatment as vaginal or abdominal Cæsarean section.

Dr. MURDOCH CAMERON (Glasgow) agreed with Dr. Griffith that if proper assistance was at hand no anxiety need be entertained about the termination of the case. His treatment was to apply a tight bandage, plug the vagina, give opium, and after the patient had got over any symptoms of shock to induce labour. He had never seen a death from accidental hæmorrhage. On no occasion in dealing with the case should the de Ribes bag be used, nor would he entertain the proposal of Cæsarean section.

Dr. W. GARDNER and Dr. J. R. GOODALL (Montreal) communicated a paper on

Chronic Metritis and Arterio-sclerosis of the Uterus.

From a study of nine cases they were able to distinguish two distinct groups. Chronic metritis was divided clinically into simple and complicated. By simple metritis was meant a clinical entity with the symptoms of uncontrollable hæmorrhage and the physical signs of enlargement of the uterus, thickening of its walls, induration, enlargement of its cavity—all these without loss of symmetry. In simple metritis the uterus alone was involved without participation of the other pelvic organs. By complicated metritis Dr. Gardner and Dr. Goodall meant a uterine condition similar to the above but associated with chronic disease of the appendages, with which the metritis might be primarily or secondarily associated. In their paper Dr. Gardner and Dr. Goodall dealt only with chronic simple metritis, which, as already stated, they divided into two groups. Six of these cases fell into the first group, and to this group they applied the term "inflammatory." To the second group, of which they had had two cases, they applied the term "arterio sclerotic." They then proceeded to give the characteristics of the two groups, their description comprising minute and detailed pathology, which would be published in full with their paper.

Dr. ARTHUR E. GILES (London) read a paper on

A Study of 146 Consecutive Cases of Ventrofixation of the Uterus.

He presented some observations on the operation of ventrofixation, based on a series of 146 consecutive cases, divided into groups as follows: Group I., uncomplicated retroversion of the uterus, 47 cases; Group II., retroversion and fixation of the uterus, 26 cases; Group III., retroversion and diseased appendages, 21 cases; Group IV., retroversion and fibroids, 13 cases; Group V., prolapse, 19 cases; and Group VI., total procidentia, 20 cases. The subject was considered with special reference to three points—viz., (1) indications for the operation; (2) technique of the operation; and (3) after-results of the operation. The conclusions arrived at were as follows: 1. Indications for ventrofixation. Dr. Giles regarded the operation as a valuable one—(*a*) in cases of moveable retroversion of the uterus when pessaries had been tried without success; when the uterus retained its position as long as pessaries were worn but fell back as soon as they were removed; and when the patient elected to undergo radical treatment rather than submit to pessary treatment with its attendant frequent examination; (*b*) in cases where the uterus was held down by adhesions in a position of retroversion; (*c*) in cases where a retroversion was complicated by disease of the appendages; and (*d*) in cases of prolapse and total procidentia. Dr. Giles did not suggest that cases of retroversion in the first group should usually be operated upon but was of opinion that about 5 per cent. of such cases would be benefited by operation. 2. Technique of the operation. Dr. Giles laid stress upon the advisability of treating at the same time, whenever possible, co-existing abnormal conditions. thus cases with endometritis should be curetted; a torn cervix should be repaired; a hyperplasic cervix should be amputated; small or solitary fibroids should be enucleated; prolapse of the vaginal walls should be dealt with by colporrhaphy, perineorrhaphy, or both; and diseased appendages should be treated by conservative procedures or by removal, according to the nature of the case. 3 Results of the operation. Dr. Giles had seen and examined 73 patients at periods varying from six months to eight years after the operation. 12 patients had become pregnant, with 16 pregnancies between them, resulting in nine confinements at full term, five miscarriages, and one pregnancy of seven months at the time of reporting. In no case were there any serious complications with labour. In 10 of the 12 cases the uterus remained fixed in good position after delivery; in two there was partial return of the displacement. Among the 61 cases where no pregnancy followed the uterus remained in good position in 58, or 95 per cent.; in three cases there was a return of the displacement. The abdominal scar gave trouble in only 2, or 3 per cent. of cases; there was one case of scar hernia, the other being a case of "stitch-abscess." The general condition of the patient showed marked improvement in about 90 per cent. of cases.

Dr. TODD GILLIAM (Columbus, Ohio) stated that he shared Dr. Dudley's objections to ventrofixation. As the pioneer of operations on the round ligament for ventro suspension he had watched the development of this operation with great interest and from an analysis of many hundred cases a symptomatic cure was a nearly universal result. He claimed that the success of this method was due to the fact that the round ligaments developed *pari passu* with the development of the uterus in pregnancy. No unpleasant sequelæ followed pregnancy or parturition. The uterus was not suspended but anchored, and there was no danger of incarceration or strangulation of the bowel as there was an opening of from through which the bowel might enter or leave. The operation was simple, efficient, and safe.

Dr. J. WESLEY BOVEE (Washington) said that ventrofixation and ventro-suspension substituted one anatomical deformity for another and that he had abandoned both these operations five years ago. Uncomplicated retroversion gave no symptoms and needed no treatment. Complications were the indications for treatment. Dr. Bovee preferred ligamentous operations to ventrofixation. He dealt with both the utero-sacral and round ligaments and also the utero-vesical ligaments. He preferred hysterectomy to ventrofixation in cases of procidentia after the menopause.

Dr. S. N. HAY (Toronto) always curetted before performing ventro-suspension and if the cervix was elongated it should be amputated as it was likely to worm its way into the axis of the vagina and cause displacement. Dr. Hay expressed surprise that Dr. Giles made no distinction between ventro-suspension and ventrofixation. In Canada the fixation operation was reserved for those cases which were beyond the risk of pregnancy. Dr. Hay had opened the abdominal cavity several times at a period of from two to two and a half years after operation, and always found the uterus still in good position, with the central ligament about two inches long still on duty. In one of these cases the patient had gone through pregnancy and parturition in a perfectly normal manner, the uterus remaining afterwards in good condition.

Dr. E. C. DUDLEY (Chicago) said that after an experience of several hundred cases of suspensio uteri—not fixation—in which the posterior wall of the corpus at a point near the fundus was sutured with catgut to the anterior parietal peritoneum near the bladder, he was able to endorse this operation so far as the correction of the displacement and relief of symptoms were concerned. This operation was not, however, anatomical, while that of Dr. Gilliam was anatomical, and the latter was the one which he (Dr. Dudley) now employed. He admitted that further observations were needed to confirm the claim of Dr. Gilliam. He thought that most of the blame laid at the door of suspension properly belonged to fixation.

Dr. TEMPLE believed that ventro suspension was much to be preferred to ventrofixation, the latter being an obsolete operation, whilst suspension was an admirable operation, as it in no way destroyed the mobility of the uterus. Abortion rarely followed suspension, whilst it was common with fixation. Before any such operation was performed preliminary treatment should in all cases be followed, such as curetting or trachelorrhaphy, and so on.

Dr. GARDNER said that the importance of treatment of retroversion could not be over-estimated. Pessary treatment often failed for various reasons and by many patients was rejected if a comparatively safe operation was offered as an alternative. Dr. Gardner objected to ventrofixation in the sense of establishing a form of union of the fundus of the uterus with the abdominal wall. He aimed at creating a somewhat slender ligamentous attachment which permitted of a degree of mobility of the uterus. As regards relief from pelvic pain, it was not to be expected that the more permanent replacement of the uterus would in complicated cases relieve this symptom, which was often due to chronic metritis or to cystic or cirrhotic ovaries. The miscarriages which sometimes followed ventro suspension were not the result of the operation but were due to chronic metritis. Dr. Gardner differed from Dr. Giles in the order of operative procedure. When a number of operations were necessary he thought it was best to curette and repair or amputate the cervix and then proceed to plastic work on the vagina and perineum, if indicated, concluding all by the abdominal operation. Of the various plastic operations on the vagina he thought that Le Fort's operation was a very valuable one in suitable cases, such as an extreme degree of relaxation of the vagina in a widow unlikely to marry and past the child-bearing age There were, however, cases on record of women conceiving and bearing children successfully after this operation.

WEDNESDAY, AUGUST 22ND.

Dr. CHARLES A. L. REED (Cincinnati) made a communication on

Changes in Uterine Fibroids after the Menopause considered with reference to Operation.

The discussion was strictly confined to myomatous and fibro-myomatous growths, to the exclusion of adeno-myomata, the latter being potentially half malignant from the start and liable to become actively malignant. Fibroids were liable to retrogressive as well as to evolutional changes, comprising atrophy, calcareous and fatty degeneration—changes consistent with benignity and with the integrity of the growth. They might, however, become necrotic from pressure or they might be the seat of inflammation and suppuration or more rarely might undergo either myxomatous or amyloid degeneration, changes which destroyed the integrity but did not alter the benignity of the tumour. Too much, then, could not be laid on sarcomatous degeneration. Dr. Reed upheld as correct the statement that fibroids underwent carcinomatous change. Tumours which had a mural or submucous situation tended in general to maintain the menstruation to the age of 50 years or beyond. Dr. Reed cited a case in which it was prolonged to the age of 59 years. Cases in which there was severe recurrent hæmorrhage or in which there was rapid growth of pressure symptoms or signs of suppuration would most assuredly lead all surgeons to advise hysterectomy. But the question of operation upon fibroids during rapid reproductive life could not be solved by set rules. "The practitioner should be governed by the axiom that a fibroid of whatever character was potential only for mischief and that other things being equal it was better out than in the patient." The menopause could not take the place of the surgeon. The idea that a fibroid which had undergone calcareous degeneration had by that change become innocuous, and the hope that all fibroids which could be brought to the menopause would undergo that change was, indeed, the foundation for the let-alone policy which was to-day all too indiscriminately prevalent with the profession. Three cases were cited to show that calcereous fibroids could not be relied upon to remain innocuous. Piquand collected 81 cases of calcified fibroids in which there were 29 accidents due to compression of neighbouring organs, 15 instances of profuse metrorrhagia, and in 18 there was suppuration in the adjacent uterine tissues. An analysis of 26 reported deaths showed five from peritonitis, three from intestinal obstruction, one from retention of urine, one from ureteral compression and consequent uræmia, one from metrorrhagia, one from sudden rupture of the bladder, seven from cachexia the result of interminable suppuration, one from torsion of the uterus, and six in which death was preceded by cancer of the uterus appearing after calcification of fibromata. With regard to the last Dr. Reed seemed to view the cancer as a consequence of the fibroid and again cited a case in support of this contention. In conclusion Dr. Reed stated (1) that the only safe place for a fibroid of the uterus, however small or large, however soft or hard, however recent or old, was outside the patient's body; (2) the menopause was a poor surgeon; (3) certain fibroids of the uterus ought to be relegated to operation without reference to either the nearness or remoteness of the menopause; (4) only in cases in which there was some condition not connected with the tumour itself, and making operative interference a dangerous policy, should the leave-alone treatment be adopted; and (5) patients who chose a waiting policy should be warned of the dangers of taking such a course and should be kept under close and frequent observation.

Dr. J. F W. ROSS (Toronto) said that having listened carefully to Dr. Reed's excellent exposition of this subject, he rose to enter a protest to his conclusions. It was important that the younger men of the profession should be properly guided, and anything that Dr. Reed wrote was read with interest and looked upon as the dictum of an authority, the word of an author who had written an excellent work on gynæcology. He failed to follow his reasoning when he told them that the safest place for a fibroid was out of the woman, unless he went further and said that a degenerating uterus at the menopause was safer out of the patient's body. A fibroid was only an outgrowth of the muscular tissue of the uterus and not a malignant growth, and very seldom, if ever, did it undergo cancerous change. Cancer often accompanied myomatous tumours, but it very frequently occurred in the uterus at or after the menopause when no fibroid tumour was present. He had never satisfied himself that fibroid tumours produced such irritation as led up to cancerous development. Sarcomatous degeneration of fibroids did occur but not frequently. The removal of a small fibroid from a young married woman was a serious operation. An enucleation was not so unfortunate in such circumstances as total removal of the uterus. Total removal prevented a possibility of motherhood; if after this time the same objection did not obtain, and if then malignant disease developed, it was possible and right to remove the organ. When tumours were growing in spite of the menopause they should be removed. He agreed with Dr. Reed in much that he said and complimented him on his excellent exposition of the subject.

Dr. H. T. **BYFORD** (Chicago) called attention to the small number of recorded deaths due to the changes mentioned by Dr. Reed in comparison to the large number of tumours that occurred. Hyperæmia about the tumour and in the mucosa predisposed somewhat to malignant changes, but they did not remove a uterus on account of congestion. Many died without these tumours having been suspected. They knew that the single tumours usually grew fat and underwent myxomatous and cystic degeneration, but the multiple growths were apt to interfere with their own nourishment and did not always grow large, and if still quite small might be watched. If at the menopause the tumours were small they might not grow much, and it then would not matter if they underwent calcareous degeneration —this would be nature's cure.

Dr. **WILLIAM L. REID** (Glasgow) said that they were restricted in this discussion to treatment of fibroids after the menopause. In certain cases fibroids which had been known to exist before the menopause shrank slowly and practically disappeared after it. In other cases they slowly or rapidly enlarged, due either to degeneration of a cystic sort or to general growth of tissue. In the former case they should be left alone but watched at intervals. In the latter they should be removed as being almost certain to give rise to serious symptoms. The former were hard white fibroids, as a rule, with a well-marked capsule of connective tissue; the latter were soft, very vascular, and usually had no marked line between the tumour and the muscular tissue of the uterus.

Dr. **MURDOCH CAMERON** said he regretted very much that he was not present to hear the paper read but from the remarks in the discussion he had formed some idea of the points advanced. On one point he was quite assured, in spite of repeated assertions, that true fibroids did not disappear. In many instances the conditions found justified the greatest satisfaction that operation had been performed. His opinion, therefore, was that early operation should be advised. The logical treatment of all fibroids was the same as that for the diseased appendix—that was early removal, when the mortality should be almost *nil*.

Dr. **W. GARDNER** (Montreal) did not believe that Dr. Reed was so radical in his advocacy of the almost universal removal of fibroid tumours as to include a case such as the following, which he had had the opportunity of watching with the usual medical attendant. This was the case of a woman who became pregnant soon after marriage and as the uterus grew a cluster of sub-peritoneal fibroids appeared on the body of the uterus. This woman had been safely delivered three times. The pregnancy, labour, and puerperium were normal in each case.

Dr. **HENRY O. MARCY** (Boston) said that each patient was an individual factor. In a general way he approved of the conclusions of Dr. Reed. He reported the case of a patient, aged 78 years, in whom there was a large uterine tumour of 40 years' standing. It was supposed to have disappeared and was certainly not felt in the abdomen. The uterus measured nine inches in depth; it was drawn out and removed. An easy recovery followed. A uterine myoma as a rule should be removed. If ever the mortality exceeded 4 per cent. it was due to faulty technique.

Dr. **D. J. EVANS** (Montreal) spoke in favour of a conservative attitude in the question of fibroid tumours. He mentioned a case in which a tumour complicated pregnancy at the third month, causing excessive enlargement of the uterus. This tumour was as large as two fists and was situated on the anterior uterine wall. It remained palpable for about two years, when it disappeared within six months, the patient having been delivered at term. He mentioned three other cases with tumours which he had delivered at term without difficulty and the tumours had since given no trouble.

Dr. **GRIFFITH** referred to two cases of calcified fibroids in old women requiring removal, recorded by him recently in the transactions of the Obstetrical Society of London.

Dr. **JOSEPH PRICE** (Philadelphia) fully agreed with Dr. Murdoch Cameron as to the treatment of fibroids. He criticised Dr. Reed's conservative treatment and considered that removal of single or multifold fibroids could be easily performed by the vaginal route.

Dr. H. L. **REDDY** (Montreal) read a paper on

Indications for Cæsarean Section other than Pelvic Deformities or Tumours.

Cæsarean section was advanced by Dr. Reddy as an operation of election in such conditions as eclampsia and placenta prævia. He regarded this operation as capable of being performed almost anywhere and by anyone, provided the rules of asepsis were followed. His own experience was based on 14 cases, 13 of which were successful, the fatal case being one of deformed pelvis and the patient was in a desperate condition; the child was saved. He advocated a more frequent employment of Cæsarean section than was done at present. It was easier than *accouchement forcé*. Indeed, it was almost as safe as an ordinary confinement. In eclampsia the consensus of opinion was in favour of rapid delivery and in such cases where convulsions had set in early, or at full term, and the cervix was not yet dragged up and the os not yet dilated, the question arose as to what was the best means of effecting delivery. There were four methods of rapid delivery. First, Dührssen's cervical incisions; secondly, dilatation by mechanical dilators, such as Bossi's; thirdly, vaginal Cæsarean section; and fourthly, Cæsarean section proper. In the first method there was danger from infection and hæmorrhage and, moreover, it required a practised accoucheur. In fact, it required more assistance than true Cæsarean section Mechanical dilatation did not mean rapid delivery and led to laceration. Vaginal Cæsarean section had all the objections urged against Dührssen's operation and was still more difficult to perform, whilst abdominal section was simple and easy and practically free from danger. Was Cæsarean section justifiable in placenta prævia? Dr. Reddy stated that it was, especially in placenta centralis. The death-rate of Cæsarean section was to-day from 3 to 5 per cent. and nearly all the children were saved, even in cases of placenta prævia. The following telegram had once been sent to 14 leading physicians in the United States: "In placenta prævia centralis, the patient being a primipara, a child viable, a cervix rigid, free hæmorrhage, surroundings favourable, would you endorse Cæsarean section?" Out of the 14, 11 practically answered in the affirmative, and with this view Dr. Reddy did not hesitate to agree. After comparing Cæsarean section with the various methods of delivery per vaginam, Dr. Reddy asked, Why advise the most difficult operation when the simpler one satisfied every demand? As to objections to opening the peritoneal cavity, they did not exist under proper conditions. As to hæmorrhage, it was not so great as in an ordinary confinement. Cæsarean section was indicated in hypertrophic elongation of the cervix or with a hard os due to scar tissues. Dr. Reddy had operated in this way for this condition. Cæsarean section was the best mode of delivery in cases of valvular cardiac disease with failing compensation and in congestion of the bases of the lungs. He had performed Cæsarean section for this indication. As soon as the uterus was emptied improvement was noticed and was maintained. Moreover, in this case the patient was sterilised to prevent future pregnancy.

Dr. A. **MCDERMID** (Chicago) stated that he had twice performed Cæsarean section for pelvic deformity, with results favourable to the mother and the child. He had advocated Cæsarean section for placenta prævia, being led to do so by a recent experience in which he almost lost a case of placenta prævia from hæmorrhage, the child dying. Such a case as this might have been saved by the abdominal operation. He regarded Cæsarean section as the best treatment in cases of eclampsia, and agreed with Dr. Reddy in denouncing symphysiotomy.

Dr. **MURDOCH CAMERON** stated that Cæsarean section was quite uncalled for in placenta prævia but was indicated in affections of the cervix or in fibroids, but even here possibly hysterectomy would be better. Cæsarean section might be required in cases of tumours with the soft part blocking the pelvic cavity. In many cases of eclampsia this operation would possibly save life where the os uteri remained undilated.

Dr. **GRIFFITH** agreed with Dr. Reddy in his opinion as to particular cases of placenta prævia requiring Cæsarean section. He was very doubtful as to the advisability of performing Cæsarean section in cases of eclampsia, except possibly in the interests of the child, and he was still more doubtful as to its employment in cases of heart failure.

Dr. **GARDNER** believed that in the list of indications for vaginal Cæsarean section might well be included selected cases of hyperer[illegible] gravidarum in which the symptoms were very urgent, indicating speedy emptying of the uterus. Rapid dilatation was very apt to tear the cervix at the internal os if not at the external os. The clean incision of vaginal Cæsarean section could be carefully adapted and sutured to secure union without cicatricial tissue.

The Value of the Conservative Treatment of the Ovaries.

Dr. Joseph Price (Philadelphia) gave an all-round denunciation of the conservative treatment of the tubes and ovaries, stating that to these operations were due a long train of untoward circumstances which comprised repeated subsequent operations, mental instability, and even insanity.

Dr. Marcy said that the late Dr. Buch of Ontario found on examination of 500 insane women, 100 of whom had been operated upon, 70 returned to health and sanity.

Dr. Floris F. Laurence (Columbus, Ohio) stated that his experience in efforts of conservatism had been unsatisfactory. Three times he had to operate a second time for extra-uterine pregnancy because he did not remove the opposite tube at the first operation. He therefore advocated removal of both tubes whilst operating for extra-uterine pregnancy.

Dr. Manton (Detroit), speaking from ten years' experience, found that the majority of conservative operations were successful. He had reported 100 cases of conservative operations on the appendages without a death. Most of the patients had been under observation for a year; some of them for seven or eight years. In three a subsequent operation was necessary; five others were reported as "doubtful." 15 per cent. subsequently became pregnant.

Dr. Thomas S. Cullen (Baltimore) gave an Epidiascopic Demonstration illustrating the Degenerative Changes in Uterine Myomata, accompanied by a brief pathological dissertation.

Thursday, August 23rd.

The meeting opened by a discussion on

The Appendix Vermiformis in Relation to Pelvic Inflammation.

which was introduced by Dr. T. A. Helme (Manchester). The points on which he invited discussion were the following: 1. That the association of appendicular and pelvic disease is due to contiguity rather than continuity of structure. 2. That the accidental inward direction or pelvic position of the appendix is the chief factor in this association. 3. That the appendix or the pelvic organs may provide the primary source of disease. 4. That appendicitis is a frequent source of dysmenorrhœa and its associated mucous colitis. 5. That association of appendicitis with pelvic disease is the exception and not the rule. 6. That the appendix is not a vestigial structure but a highly differentiated portion of the intestinal tract, and plays an important part in intestinal digestion. 7. That the systematic removal of the appendix during laparotomy for pelvic disease in the absence of evident disease is not justifiable.

The following gentlemen joined in the discussion: Dr. Gilliam (Columbus, Ohio), Dr. Lapthorne Smith (Montreal), Dr. Arnold W. W. Lea (Manchester), Dr. Carstens (Detroit), Dr. Temple (Toronto), Dr. Lockhart (Montreal), Dr. Holmes (Chatham, Ontario), and the President.

Dr. Cuthbert Lockyer (London) spoke on the relationship of appendicitis to pregnancy, its effect on pregnancy, the prognosis of this disease to mother and child, and the treatment of cases in which pregnancy was complicated by appendicitis.

The President gave a lantern demonstration of the Anatomy of Labour which was much appreciated but called for no discussion.

Dr. Murdoch Cameron read a paper on Anti-streptococcic Serum in Puerperal Septicæmia. He advocated the use of this serum for certain types of puerperal fever, more especially those in which there had been no great laceration of the soft parts. With respect to the latter he argued that the serum could not be expected to combat the results of traumatism as well as those of infection.

This paper was not discussed.

Dr. Evans read a paper on the Treatment of Eclampsia, in which he drew attention to Adebohls' operation of renal decapsulation for eclamptic anuria, mentioning successes obtained by means of this operation by Adebohls and others. Helme's lumbar puncture, introduced with the idea of reducing intracranial pressure, had not met with success. The various forms of drug treatment were fully discussed.

Dr. Gilliam described in detail an Operation for Uterine Displacement.

PHYSIOLOGY.

Tuesday, August 21st.

The Section of Physiology opened by holding a joint discussion with the Section of Pathology on

The Part played by the Nucleus in Nutrition.

Professor Adami (Montreal) suggested that the nuclear chromosomes determined the inherited peculiarities of the individual and that by varying amongst themselves they controlled particular conditions. After alluding to the effects of removal of the nucleus the gross and minute changes occurring in the nucleus during the course of cell activities were shortly dealt with, particular attention being drawn to Professor Macallum's researches on the formation of prozymogen from the nuclear chromatin. While in tissues at rest the nuclei underwent shrinkage, they became exceedingly conspicuous in the early stages of cell irritation and in acute degenerations, but in the later stages of cloudy swelling and fatty degeneration they rapidly lost their staining properties and became indistinct. If the nucleus simply contracted or clumped (pyknosis) it might recover its normal appearance, but after complete disappearance of the nuclear chromatin (karyolysis) regeneration of the cell became hopeless. The iron-radicle of nucleo-proteids and also the phosphorus-content facilitated oxidation changes in the nucleus and thereby imparted to the nucleus potentialities superior to those of any ordinary constituent of the cell body. Professor Adami believed that vital phenomena depend ultimately on a special order of molecules which he called biophores, and that the latter were situated in the nucleus, because the vegetative powers of the latter were greater than were those of the cell body. New biophores were supposed to arise under the influence of pre-existing ones by the latter "possessing unsatisfied affinities and attracting side-chains of various ions, simple and compound, from the surrounding media and that the latter became grouped in a manner identical with the grouping present in the pre-existing biophore."

Professor A. B. Macallum laid special stress on the absence of inorganic halogen salts; neither potassium nor chlorine was present within the nuclear membrane, the latter acting as a semi-permeable membrane, impervious to inorganic salts but pervious to organic constituents, which by passing into the nucleus were either aggregated there or were perhaps built up in the nucleus into the nuclear structures.

Dr. Gustav Mann (Oxford) recognised two distinct processes going on normally in the nucleus, one of which resulted in the formation of the basophile nuclear chromatin, while the other gave rise to nucleolar matter. Ordinary somatic cells during active metabolism resembled male cells in possessing a large amount of basophile chromatin and little or no nucleolar matter, while resting cells resembled the ovum in containing a large amount of nucleolar matter and only little chromatin. To him sex meant a loss of balance between these two nuclear functions and fertilisation merely the re-establishment of the balance. During normal metabolic processes induced by feeding with albumin or any of its derivatives down to the amino-acids, in drosera and in the newt nuclear changes resembling the initial stages of true karyokinesis were induced, the number of chromatin segments in drosera being eight, while ordinary dividing cells contain in this plant 16 segments. Attention was drawn to the reduced number of segments in cancer being perhaps only a special phase of ordinary metabolism. Sulphur seemed to be absent in the nucleus and it was possible by the administration of antipyretics mixed with peptone solutions to retard nuclear activity from five minutes to 30 hours.

Professor E. Wace Carlier (Birmingham) believed a nucleus to possess reproductive functions quite apart from vegetative functions and restricted the term nucleole to those bodies containing pyrenin. When the tropho-chromatin decreased during nuclear activity the nucleolus increased in amount, to be cast out from the nucleus at the first opportunity—i.e., so soon as the nucleus took up a food-supply from the lymph. He confirmed Haeker's view that pyrenin was effete material, unavailable for nuclear activity directly, though after resolution in the cytoplasm it might become useful. Zymogen was always derived from the nuclear basophile chromatin and never from the nucleolus.

Dr. E. F. Bashford (London) stated that from the outset of the investigations of the Cancer Research Fund the work had proceeded on the basis that cancer was a cell problem requiring to be approached from the experimental aspect. The problem required to be attacked under conditions more favourable than those obtaining in man. Since the entire vertebrate kingdom had been found to be pervaded by the disease, the processes of cell division had been studied under the favourable, the classical conditions obtaining in the amphibia. The so-called heterotypical mitoses had been found to have no existence in fact. In the case of tumours which could be propagated there was nothing to indicate nuclear fusion or fertilisation. The irregular forms of cell division were apparently subsidiary phenomena. What required explanation was the apparently ceaseless proliferation by normal bipolar mitosis in which the normal number of chromosomes was retained. The cell division was, however, only the terminal phase in the growth of the cell itself and was the most evident expression of the more complex problem of cell nutrition which lay at its basis. Thus stated it was not so much the power of ceaseless proliferation as the ceaseless power the cells possessed of nourishing themselves.

The following papers were then read:—

Proteid Nomenclature.

Professor W. D. **HALLIBURTON'S** paper on this subject formed his Presidential Address to the Section of Physiology and he put before the association the joint deliberations of the Physiological and Chemical Societies of England. It is suggested to substitute for the term "proteid," hitherto used in England, the term "protein," as this word is at present used in America and to a certain extent in Germany (Proteinstoffe).[1] Proteins were divided into: (1) protamines; (2) histones; (3) albumins; (4) globulins; (5) sclero-proteins (instead of the word "albuminoid"), including gelatin, keratin, &c.; (6) phospho-proteins, represented by the vitellin-caseinogen group; and (7) conjugated proteins, in which the protein-molecule is united to a prosthetic group: (*a*) gluco-proteins (e g, mucin), (*b*) nucleo-proteins, and (*c*) chromo-proteins (e.g, hæmoglobin). The products resulting from protein-hydrolysis were divided into: (1) infra-proteins (formerly called acid- and alkali-albumins); (2) proteoses, including albumose, globulose, gelatose, &c.; (3) peptones or substances which could not be salted out from solution, but which still gave the biuret reaction; and (4) polypeptides or compounds resembling peptones, but not giving the biuret reaction. Fibrin being a derivative of fibrinogen and the latter a globulin, it was placed under the globulins. It was finally suggested to continue to use the words: caseinogen, casein, paramyosinogen, and myosinogen.

Tryptic Digestion.

Dr. **DELEZENNE** (Pasteur Institute, Paris) obtained inactive pancreatic juice by the injection of secretin or by catheterising a permanent pancreatic fistula and then rendered it within a few hours as active by the addition of a soluble lime salt as if it had been acted upon by enterokinase. After the juice had once been rendered active the calcium could be completely removed by means of sodium oxalate without the digesting power suffering in the least. If alkali carbonates and phosphates were removed from the pancreatic juice by means of dialysis, extremely minute quantities of a lime salt were sufficient for activating purposes and lime seemed to be a specific activator inasmuch as barium, strontium, and magnesium had no, or only a very slight, action, which latter might be accounted for by traces of lime salts present in the juice itself.

Dr. S. P. **BEEBE** (Cornell University, New York), continuing his work on

Nucleo-proteid Immunity,

found it much more difficult to obtain highly active anti sera to nucleo-proteids than to albumins or globulins, for animals would bear after repeated inoculations only from three to four times the initial dose, especially if thyroid proteids be taken. Highly active anti-nucleo-proteid sera showed in a test tube a specific precipitin reaction, except they be in very high concentrations; they produced very quickly a complete agglutination if very fine fragments of the same kind of organ which was originally used in their preparation be suspended in salt solution. Thus an active anti-thyroid serum would agglutinate in concentrations of 1 in 2 up to 1 in 5 a thyroid emulsion in one second, while it caused no agglutination of muscle, kidney, liver, spleen, or lymph-gland emulsions in half an hour at the same concentration. Anti-nucleo proteid sera also possessed *in vitro* weak hæmagglutinative and hæmolytic properties (which latter were quite distinct from the precipitin and agglutinin reactions), but these hæmolytic reactions did not occur *in vivo*, there being even an increase of 25 per cent. in the hæmoglobin and in the number of erythrocytes. Inoculation of animals showed an almost complete specificity.

Dr. H. E. **ROAF** (Liverpool) found minute traces of acid to inhibit the growth of sea-urchin's eggs, while traces of alkali favoured the rapidity of growth, but were likely to give rise to irregularities in the size and shape of the cells.

Professor **KEMP** (Champaign, Illinois) said that blood platelets contained nucleo-proteid material. They increased at high altitudes even more markedly than the red corpuscles. If the blood plates increased in number during treatment of a severe case of anæmia the diagnosis of pernicious anæmia was excluded and the prognosis was good; in purpura hæmorrhagica the plates were greatly reduced in number.

WEDNESDAY, AUGUST 22ND.

A joint discussion on Over-nutrition and Under-nutrition, with Special Reference to Proteid Metabolism, was held with the Section of Medicine, Sir **THOMAS BARLOW** being in the chair. This will be found in the report of the Section of Medicine (p. 729).

The Metabolism of Kreatin and Kreatinin.

Dr. **FOLIN** (Waverley, Massachusetts) said that kreatin was not the immediate precursor of the kreatinin appearing in the urine, for given in moderate quantities with a low nitrogen diet (starch and cream) it was not eliminated at all; given in large quantities (from five to six grains) with a low nitrogen diet about one grain was eliminated unchanged, while if it be given along with food rich in proteid matter 50 per cent. was excreted unchanged in 24 hours.

Chemical and Physiological Studies on Growth.

Dr. **MENDEL** (Yale University) said that the purin compounds formed in a developing egg were guanin and adenin and mere traces of hypoxanthin. There were always present a number of enzymes engaged in transforming purin-containing material, such as nucleases, amidases, oxidases, uricolytic enzymes, &c. The power of destroying uric acid was but feebly developed in the embryo liver, while it was very marked in the adult liver. Pentose radicles were formed *pari passu* with the purin radicles in developing eggs.

Professor B. **MOORE**, Dr. **ROAF**, and Dr. **WHITLEY** (Liverpool) stated that hydrogen-ions diminished while hydroxyl-ions tended to increase cell-division. Neutral salts showed no toxic effect so long as their osmotic pressure did not almost equal that of the internal fluids. Barium and ammonium were, however, toxic. Phosphates in low concentration favoured growth while in high concentrations they retarded growth.

Dr. **REID HUNT** and Dr. B. **DE M. TAVEAU** (Washington) recorded that after introducing various fatty acid radicles into the ethy-oxy group of choline these new compounds were tested physiologically. The acetyl derivative was nearly as powerful as adrenalin but in the opposite direction; it was 1000 times more powerful than choline itself, causing marked fall of blood pressure. Introducing an aromatic radicle gave rise to compounds which raise the blood pressure both before and after atropine. One cubic centimetre of a solution of 1 in 25,000 of phenyl-propionyl-choline chloride would cause a rise of blood pressure and marked slowing of the heart.

Structure and Functions of the Amœba.

Professor C. F. **HODGE** (Worcester, Mass.) and Professor M. F. **DUNCAN** (Clark University, U S.A) made a communication in which they said that the aim in view was the elucidation of how elementary tissues had become evolved. The neuro-muscular functions in amœba were bound up with a system of fibres which were very delicate at the periphery of the cell and much coarser in the middle. The ectosarc and endosarc of living cells disappeared after fixation. The functions of digestion, assimilation, and growth were in the amœba represented as follows: the zymogen-granules were intranuclear but during digestion passed out into the food vacuoles and there digest such food materials as paramœcia, &c. The contractile vacuoles helped to bring about a circulation of the cell juices and at the same time helped respiration and excretion.

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[1] Emil Fischer has now definitely adopted this expression.

PATHOLOGY AND BACTERIOLOGY.

TUESDAY, AUGUST 21ST.

The programme of the Section of Pathology, officially termed the Section of Pathology and Bacteriology, after separating from the Section of Physiology commenced with a paper by Dr. R. M. **PEARCE** and Dr. H. C. **JACKSON** (Bender Hygiene Laboratory, Albany, New York) entitled

Concerning the Production of Somatogenic Cytotoxins by the Injection of Nucleo-proteids.

The experiments made were the immunisation of rabbits to nucleo proteids by the use of washed kidney and pancreas of the dog. The resulting serum was injected into dogs intravenously in doses of two cubic centimetres per kilogramme of body weight. As a control test a serum prepared by injecting cows' pancreas was used. In order to limit the problem sharply attempts were made to immunise with nucleic acids of kidney and pancreas respectively. The resulting sera were found to cause a general disturbance most marked in the kidney. These lesions were therefore the result of a toxic substance having a more or less general action but with especial effect on the chief excretory organ, the kidney. They could not be said to be specific in their action.

The discussion was continued by Professor A. S. **WARTHIN** (Ann Arbor University). He considered that the facts stated as apparent proof of the specificity of the serum prepared by Dr. Beebe were not sufficient proof that such a serum was specific for the following reasons. An identical delayed toxic reaction was shown in the kidneys of small animals that had been exposed to Roentgen rays for several hours. When examined immediately after the irradiation very slight and transitory changes were found in the kidneys. After a number of days albuminuria developed and a marked condition of cloudy swelling was found in the kidneys. This delayed toxic action might be explained as resulting from the products of proteid disintegration caused by the irradiation. Might not the delayed renal action produced by Dr. Beebe's serum be similarly explained as the result of poisons formed from the action of the serum? Experiments in his laboratory by Dr. Woltmann tended wholly to confirm Dr. Pearce's work. They could produce no specific sera; all were hæmolytic, lymphotoxic, myelotoxic, nephrotoxic, &c., and no specific histological changes could be produced. He agreed with Dr. Beebe as to the variability of reaction shown by different animals.

Dr. W. W. **FORD** (Johns Hopkins University) contributed a paper entitled

A Consideration of the Poisons present in Amanita Phalloides.

Dr. Ford described the toxicity of the poisonous fungus, the white or deadly amanita, which had caused 300 fatalities from its consumption. With Professor Abel of the Johns Hopkins Medical School, a chemical study of the fungus was carried out. In 1891 it had been discovered that aqueous and saline extracts of the fungus were powerfully hæmolytic, dissolving a variety of corpuscles in great dilution; the agent was considered to be a toxalbumin, this active principle being known as phallin. As, however, the toxicity of these fungi was not destroyed by cooking, other substances than phallin, which was destroyed at 70° C., must be present. Thus, heating extracts of the fungus to 70° and to 80°, destroying their hæmolytic properties and digesting them with pepsin and pancreatin, left behind a highly toxic substance which killed animals rapidly and produced a different pathological picture post mortem. Moreover, Kobert in a later paper stated that there was a third toxic substance present in addition to toxalbumin and alkaloid. In Dr. Ford's work the fungi were identified as Amanita phalloides in the fresh state and collected in the Blue Ridge Mountains of Pennsylvania and their juices obtained in large amounts and evaporated. The precipitate obtained by alcohol was found to contain the hæmolysin; the clear filtrate contained the amanita toxin. The Amanita rubescens contained a powerful hæmolysin for a variety of blood corpuscles, apparently identical with that of the deadly amanita. This furnished the final proof that the hæmolytic substance described by Kobert had nothing to do with the intoxications in man. The lesions produced by ingestion of the fungi were to be attributed, as their pathological character suggested, entirely to the amanita toxin, which was regarded as the active principle of the plant.

Dr. E. F. **BASHFORD** (London) stated that if Dr. Ford had obtained an active immunity to glucosides it was the first occasion and of fundamental importance as linking the proteids and carbohydrates proper.

Dr. **FORD**, in reply, stated that animals had been successfully immunised to extracts of Amanita phalloides, which contained poisonous glucosides and in some cases to these glucosides in association with proteid and free from proteid.

Professor W. H. **MAINWARING** (Indiana University) dealt with

The Application of Physical Chemistry to Serum Pathology,

summing up two years' work on the chemical composition of antitoxic and bactericidal sera by physico-chemical methods in answer to the papers of Arrhenius and Madsen which were published in 1904.[1] The problem was attacked from the aspect of the partition coefficient and the reversible reactions, two physico-chemical laws the application of which had been attempted to serum phenomena; the illustrations were expressed in mathematical terms and numerous diagrams were shown.

Professor R. **MUIR** (Glasgow) with Dr. W. B. M. **MARTIN** (Glasgow) contributed a paper

On the Combining Properties of Opsonins of Normal Serum.

The three chief varieties of immune bodies (amboceptors)—viz., those obtained by the injection of (*a*) red corpuscles, (*b*) serum, and (*c*) bacteria respectively—were treated and it was found that in each case the combination of receptor + immune body removed the opsonin of normal serum as tested by an emulsion of staphylococcus aureus. It was shown that a bacterium treated with immune body took up more of the normal opsonin than the same bacterium untreated. It was intended next to test whether the comparatively thermostable opsonin which might be present in an immune serum could be removed by the methods of absorption employed above. In this way information might be obtained as to the classes of opsonins so far as their combining relationships were concerned.

Professor G. SIMS **WOODHEAD** (Cambridge) was glad to merge his paper in that of Professor Muir as he had only one or two points to raise. He had found opsonins corresponding to complements in cows' milk and also opsonins of a somewhat different character the results of the infection of tubercle.

Dr. G. W. **ROSS** (Toronto) said that the opsonic power of the blood of newly born children to the tubercle bacillus was about one-half that of the mother, whilst it was about the same in each case to the staphylococcus pyogenes. The practical importance of these observations concerned infant feeding and whether or not mother's milk was essential in remedying this deficiency of tuberculo-opsonic power.

WEDNESDAY, AUGUST 22ND.

Professor R. F. C. **LEITH** (Birmingham) presided.

Dr. F. J. **SMITH** (London) contributed a paper with Dr. C. **MILLER** (London) on

Gastric Erosions,

in which he maintained that the first stage in probably all cases of acute gastritis or gastric ulcer was inflammation of the small collections of lymphoid tissue in the submucous coat of the stomach. Subsequent events—e.g., hæmorrhage, gross ulcer (acute or chronic), perforation, &c.—depended entirely upon the relative power of the inflammation factors *versus* the reparative powers of the mucous membrane of the stomach.

A discussion on the

Etiology and Life-history of Malignant New Growth

was opened by Dr. G. H. A. **CLOWES** (New York State Cancer Laboratory, Buffalo), in a paper on Experimental Studies in Mouse Tumours. Most important results were obtained by the study of the action of chemical and physical agents on mouse tumours and evidence was detailed of spontaneous recovery from, and immunity against, mouse tumours. Data were presented regarding experiments carried out by Dr. Clowes and Professor Gaylord, the essential points brought out being as follows. Three main types of tumour had been employed: (1) "Jensen," showing 30 per cent. of successful inoculations with slow development and over 20 per cent. of spontaneous recoveries; (2) "Brooklyn" tumour, giving 90 per cent. yield, with rapid development and only

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[1] Brit. Med. Jour., vol. ii., 1904, p. 565.

5 per cent. recoveries; and (3) "Spingfield" tumour, which only gave tumours at start by incubation before transplantation and 30 per cent. recoveries. It was shown that tumour cells were far more resistant to chemicals than bacteria, withstanding $\frac{N}{200}$ KCN and $HgCl_2$ at 1 in 2500. Proof of immunity was afforded by the following points:—(1) Spontaneous recovery from true tumours occurs; (2) spontaneous recovery cases are not re-inoculable; (3) there are reduced yields on second and third inoculations; (4) mice with growing tumours fail to take on second inoculation at a different point in the body; and (5) action of serum of recovered mouse on small tumours and on cancer cells. It was shown that immunity was not conferred by injection of tumour cells killed by heat or by chemicals or by nucleo-proteids extracted from tumours. Ehrlich's recent theory of cancer was discussed and Dr. Clowes showed that the results of the later work of the New York Laboratory harmonised better with the theory of a stimulating virus. These results could not for the present be applied to human beings.

Dr. BASHFORD described the work of the Imperial Cancer Research Fund. In the mouse 28 spontaneous tumours had been transplanted with 25 per cent. success. The parenchyma of the tumour was the only part that grew on transplantation; the stroma never. Dr. Bashford dwelt upon the absence of any sharp distinction between expansive and infiltrative, or, in other words, simple and malignant growths. An investigation into the statistics of cancer incidence with the Registrar-General showed that there were no increase of cancer and no evidence of endemicity in cancer.

Professor H. R. GAYLORD (New York State Cancer Laboratory) contributed a valuable paper on the evidences that infected cages were the source of spontaneous cancer developing among small caged animals. He found in one year three cases of sarcoma of the rat in one cage in which had been previously kept rats with transplanted sarcoma. There were eight rats exposed in the cage with three positive results. He located one cage in the establishment of a dealer from which in three years 66 spontaneous mouse tumours were found. During this time the stock was completely changed. Again, a second dealer found eight or nine cases of cancer in groups in separate small cages.

Professor EWING (New York) and Dr. S. P. BEEBE gave a preliminary report of a study of the action of salt solution, nucleo-proteid antiserum, susceptible blood, and immune blood upon the cells of the infectious lymphosarcoma of dogs. In some experiments the fluids were saturated with oxygen, in others with nitrogen, and finally in some the blood was changed every 12 hours. The best preservation of cells was obtained by charging the blood every 12 hours and saturating with oxygen, by which means a peripheral layer of cells about the tumour nodule was well preserved for at least 96 hours. Susceptible blood formed a better preservative than immune blood. In salt solution the cells rapidly recovered. Atmospheres of nitrogen were comparatively unfavourable. The former tests were not concluded.

Professor SIMS WOODHEAD regretted that he had been unavoidably prevented from hearing the earlier papers on the subject and expressed diffidence in continuing the discussion. He was so much interested, however, in the later papers that he would make no further apology for intervening at this stage. The points that impressed him most were, first, the promise of further results from the fact that so large an amount of spontaneous tumour growth in mice could so easily be obtained, and, second, the importance of the work founded on the side-chain theory, as expounded by Ehrlich and his school. So far most of their efforts had been directed to clearing the ground and of removing many of those hampering traditions that cling round the question of cancer growth. It was hoped that greater attention might thus be centred on the real and prime factors in this very complex problem. With a large amount of material, during the collection of which some of the factors in the question might be solved, many of those questions as to the difference or likeness of structure and function between cancer cells and normal epithelial cells of various types might be gradually attacked. The specificity of antibodies and the relation of these antibodies to the cells might give us light as to the specificity of the cells. Minute differences in albumins in blood gave specific differences in the form of the antibodies and it remained for them to see whether there might not be equally minute but specific differences between cancer cells and normal epithelial cells. Along these lines they might through the study of function learn something of structure, and of structure learn something of the nature of the altered function of cancer cells.

Professor WILLIAM H WELCH expressed great satisfaction in the opportunity of hearing these important subjects presented by those actually engaged in the researches on cancer. He expressed the view that the extraordinary observations reported by Dr. Clowes regarding the insusceptibility of cancer cells from tumours of mice to the action of strong germicides, such as corrosive sublimate, the cyanides, &c., could be explained only on the assumption that in some way the germicide was prevented from coming into actual contact with the living substance of the cells, and he referred to his observations on the influence of sublimate in cutaneous disinfection where this explanation applied. Professor Welch called attention to the differences between spontaneous tumours of mice and of dogs, the latter being often complex and even teratomatous. As to the question of the unicentric origin of cancer in Ribbert's sense, the examination of beginning adeno carcinomata of the uterus in scrapings showed often cancerous metamorphosis of groups of cells over comparatively wide areas.

Dr. F. G. BUSHNELL (Brighton) summed up briefly his contribution to the discussion from his observations as a pathologist to a general hospital and expressed his appreciation of the work of those who had spoken and were devoting their lives to cancer research. One feature in the histological examination of normal and abnormal tissues stood out—viz., the continuity in structure which linked up normal and abnormal growth. An analogous condition was seen in metaplasia which occurred in carcinoma of the cervix uteri, in gastric carcinoma, and elsewhere. Thus a study of cancer resolved itself into a study of the laws of growth. This could be carried out from the point of view of (1) structure and of (2) function in biochemical terms. Personally Dr. Bushnell had never yet found one single feature by which the departure of the cell from its specific maintenance of form and activities was to be detected. Even heterotype mitoses which he carefully observed and recorded in 1902 were not essential to cancer structure. As illustrations of the linking-up of tissues were given that of the young trophoblast (chorion-epithelium) which had a striking power of growth and in the early stages of the imbedding of the ovum had physiological relationships which were destructive to the boundary zone. Again, hydatid mole was an excessive proliferation of both layers of the chorionic epithelium. Malignant mole showed a little more overgrowth of epithelium, some infiltration of the decidua and invasion of vessels, but histological distinction between simple and malignant mole might be absolutely impossible. The pure chorio epithelioma might be made up entirely of epithelial tissue and might resemble a "mole" in this respect The condition was an exaggeration of that of the normal attachment of villi to the decidua in the young placenta. Examples of simple growth becoming malignant were adduced, such as adenoma mammæ becoming carcinoma; melanotic papilloma cutis giving rise to diffuse malignant growth of liver; of a "callus" tumour of the humerus of osteoid tissue following fracture becoming a low type of sarcoma; of multilocular ovarian cysts derived from the follicular epithelium or from germinal cell down-growths in the ovary becoming malignant by an alteration of the distribution and arrangement of its epithelium cells; of fibromyoma uteri which became sarcomatous; and the various cell seclusions and teratomata which gave rise to neoplasms. The study of the functions and activities of cell life was indicated in cancer research. Granulation tissue could exhibit an erosive or malignant character of low or even high type, but it seemed usually of a purposeful though sometimes of an apparently useless function. When the biochemical changes which resulted in granulation tissue were known they might expect to be on the line of the origin of malignant new growth. It was thus he hoped to work.

Professor WARTHIN gave a most valuable demonstration of the Leucoblastomata, illustrated by lantern slides, in which the origin of these leukæmic conditions was discussed and the deposits in various viscera were regarded as metastases from an original neoplasm.

STATE MEDICINE.

TUESDAY, AUGUST 21ST.

The President of this section was Dr. C. F. MONTIZAMBERT (Ottawa), who welcomed the members present in a few suitable words. The proceedings of the day were confined to a discussion on the questions connected with the prevention of tuberculosis.

Dr. SAMUEL DIXON, Health Commissioner of the Commonwealth of Philadelphia, U.S.A., read a paper entitled

Phthisis Prevention,

in which he detailed a series of experiments extending over the past 17 years in research work: the efforts to find a bacillus which could produce a suitable antitoxin to tuberculosis had succeeded so far as animals were concerned. He stated that the following propositions had been used as his guide: 1. That it was possible that by a thorough filtering of bacilli obtained from tuberculous material a filtrate might be obtained and attenuated so that by systematic inoculations a change might be produced in living animal tissues that would enable them to resist virulent tubercle bacilli. 2. To bring about a chemical or physical change in living tissues that might resist tuberculosis it was possible that inoculations with the bacillus would have to be made, yet before this could be done the power of the virulent bacilli would have to be diminished, otherwise the result would be most disastrous. The dangers which must inevitably result from the direct introduction of the bacillus into the human body led him to labour in the direction of trying to obtain the active principle which would produce immunity. He then proceeded to discuss the relationship between the tuberculous diathesis and nitrogenous metabolism, pointing out that it was confidently asserted that the victims of gout presented a remarkable immunity from tuberculosis, and from this he deduced a possible treatment based upon the introduction into the system of substances containing taurin, creatin, urea, and the like, and more especially the use of a recently discovered drug of vegetable origin called thiosinamin, and further the possibility of establishing a lithæmic habit involving excessive assimilation and metabolism of proteid substances together with increased oxygenation to antagonise the action of the tuberculous diathesis involving deficient assimilation and decreased oxygenation. He then alluded to the work done at the Henry Phipps Institute of Philadelphia, which had been founded for the study, treatment, and prevention of tuberculosis and of the production by men of science of a modified tuberculin. Reference was further made to the experiments of Ravenel, Marmorek, and Cantacuzene with bacilli from dead animals. It was upon the lines thus laid down as a basis for future experimenters that he proposed to continue his search for an antitoxin to tuberculosis and with the magnificent assistance rendered by the State of Philadelphia he was hoping for good results.

The next paper was read by Dr. ROBERTS, medical officer of health of Hamilton, Ontario, a manufacturing town of about 70,000 inhabitants. Dr. Roberts approached the subject under the following headings: (1) responsibility of federal authorities; (2) responsibility of provincial legislatures; (3) responsibility of municipalities; and (4) the individual's responsibility. He based his paper upon the assumption that pulmonary tuberculosis was not an incurable disease and that it could by proper measures be eradicated. He further went on to estimate the number of sufferers in Canada at 40,000 and the annual financial loss to the country at $8,000,000. As regarded State measures he congratulated the province of Ontario on having made a grant of 40 per cent. of the total cost of erecting any consumptive sanatorium and took credit to his own town of Hamilton for having taken the initiative in claiming the grant; he strongly advocated the addition to the Cabinet of a Minister of Public Health in every province of the Dominion. There was unfortunately now a new disease which might be called "phthisiphobia" arising among the public which consisted in a fear that it was not possible to check pulmonary tuberculosis. Such a scare could not be justified by any evidence. It was one of the most pitiable bogies he had ever met with. Dr. Roberts emphatically pointed out that the prevention and eradication of consumption constituted not merely a problem for medical men, but that it involved nearly every social and economical problem of modern life which was awaiting solution. In concluding his paper he spoke at considerable length of his own experience in Hamilton and of the difficulties which he had experienced in obtaining any satisfactory notification of cases of tuberculosis. He fully agreed that the measures which would cure pulmonary tuberculosis would also tend to its prevention and spoke of the need for better homes for the working man, for more holidays of a regular character, and for the eight hours' day.

Dr. GILCHRIST (Nice) then read a paper dealing with

Certain Analogies between Influenza and Pulmonary Tuberculosis,

based upon certain theses which he put forward as follows: (1) both diseases had prevailed in epidemic and endemic forms although in different surroundings; (2) both affected principally the organs of respiration; (3) both diseases were highly infectious and a single attack did not confer immunity but on the contrary rather predisposed to a second invasion; and (4) both diseases showed by rheumatic symptoms and involved by extension the nervous system generally.

Dr. PROBST (Ohio) next dealt with some of

The Disputed Questions in connexion with Pulmonary Tuberculosis

and spoke of the varied phases of its causation. The disagreement by authorities such as Behring and Koch upon the all-important question of infection by ingestion and the dangers more especially of infected milk were dealt with and Dr. Probst then turned to the dangers of bad or tuberculous meat as illustrated by the Chicago revelations. The public were now beginning to believe that pulmonary tuberculosis, instead of being hereditary, was really an infectious disease and had begun to demand almost impossible measures. The exclusion of the known consumptive from the school, the church, the theatre, the concert, the tram-car, the railway-car, and, indeed, from any public assembly, seemed to be a severe violation of personal rights and could not be supported by the medical profession as essential. They ought, however, to insist upon such measures as would prevent dried sputum being thrown upon the wings of every wind and upon the observance of certain simple rules and hygienic conditions. The part played by alcohol in promoting the activity and spread of tuberculosis was still to be ascertained and as there was a vast difference between the use of alcohol and alcoholism there was also the necessity for considerable differentiation according to the status of the patient. It had never been proved that alcohol in and of itself was responsible for the production of tuberculosis. The marked decrease of tuberculosis in civilised countries was to be viewed with satisfaction and most people would ascribe this to the generally improved hygienic conditions, but, on the other hand, this improvement, noted in England, in France, in Germany, and in America, did not extend to Hungary and Austria. In the different countries attention was being paid to different points and it was probable that even if the medical profession had at its disposal $1,000,000 for the prevention of tuberculosis it would know how to spend this sum. In matters of treatment it was the same and no sure course could be agreed upon. The best form of sanatorium, the need for sleeping out of doors in all weathers and all climates, the provision of amusements and even chapels, forced feeding, and the use of alcohol, were all points of disagreement. In conclusion, Dr. Probst pleaded for a better general system of home treatment for consumptive patients.

Dr. HOMAN (St. Louis) presented a short paper on

The Dust Problem as shown in Public Buildings and Private Houses.

Dusting consisted in the mere displacement of dust from one surface to another and not in its removal. He advocated compulsory cleaning by vacuum systems and the more extended use of the damp cloth.

This concluded the reading of papers and a spirited discussion followed.

Dr. GILCHRIST suggested that Dr. Dixon in his remarks upon the relation of gout to pulmonary tuberculosis had mistaken effect for cause. To load a stomach already weakened by a disease which demineralised the whole system was simply to produce an acute dyspepsia. In such cases the primary need was to restore the chlorides of the body by the judicious administration of hydrochloric acid and not to give an excess of nitrogenous foods. He relied more upon the chemistry of the disease and quoted the theories of Gautrelet as to the value of systematic urinary examinations.

Dr. PROBST said that he was almost inclined to think that the discovery of a cure for pulmonary tuberculosis would not be a good thing. People could only be induced to cease the habitual violation of the laws of health by being penalised and in this way the disease had its uses. Cure and prevention of necessity went hand in hand and the real need in both was for healthy houses and sanitary surroundings.

Dr. J. BARR STEVENS (Renfrew) related some personal experiences of the value of fresh-air treatment in his own family and explained the methods by which the lessons of prevention were being taught in Renfrew in a popular form.

Professor JOHN GLAISTER (Glasgow) pointed out that the Local Government Board for Scotland had now officially recognised phthisis pulmonalis as an infectious disease and that it was open to local authorities in Scotland to adopt the same measures of notification, isolation, and disinfection, as in the case of other infectious diseases. To some extent this had been done and further efforts had been to educate people by lectures and leaflets. It was also needed that in populous cities more attention should be given to the prevention of smoke and dust nuisances, both of which were the cause of much respiratory disease.

Dr. WOODWARD of the United States Marine Hospital Service gave an interesting description of the Hospital for Consumptives established by the State at Fort Stanton, New Mexico, and of the precautions adopted for the transit of the patients. So far excellent results had been achieved.

The discussion was closed with a most interesting personal reminiscence by Dr. J. GROVES (Isle of Wight) who had himself been a consumptive and who advocated the use of single tents and camps in preference to sanatoriums, which, though costly and very magnificent, did not so fully achieve an open-air treatment. To educate one patient and to cure him was to send out a health missioner to preach the gospel of fresh air and to announce that pulmonary tuberculosis was not wholly incurable. If all consumptives could be taught to lead suitable lives the gain to themselves and the community would be very great.

WEDNESDAY, AUGUST 22ND.

The Protection and Filtration of Water-supplies.

The first contribution to the subject was a paper by Dr. ROBINSON, who holds the position of health officer at Guelph, Ontario. He commenced by giving an outline of the principal factors common to all water problems. The essential points in connexion with every water-supply were continuous sanitary supervision from the moment of installation, regular and periodic examinations of the supply, and suitable treatment of all waters which were, or were likely to become, dangerous. The only practical method of artificial purification upon which reliance could be placed was filtration where large bodies of water were used. In England a filter-bed was, in fact, a closed reservoir suitably underdrained and filled to a height of five or six feet with suitable filtering material. The water flowed evenly and slowly over the sandy surface, leaving most of its sediment and suspended matter on the top. This formed a coating called "Schmutzdeck," which contained not only suspended matter but a gelatinous substance produced by bacterial action. Sand filters, however well constructed when newly installed, required cleaning at frequent intervals, otherwise they would become impervious. A usual rate of filtration would be from two to two and a half million gallons per acre per day, and filters of this kind would cost in Canada about 60,000 dollars per acre, smaller filters costing more in proportion than large ones. The mechanical filter was mainly of American origin and required the addition of a small quantity of some coagulant—e.g., aluminium sulphate—before the water reached the filter. This formed a white jelly-like precipitate in which suspended matters and bacteria were alike entangled. The rate of filtration was as great as 100,000,000 gallons per acre per day and the cost might be estimated at 20,000 dollars per million gallons plus a cost in operating of about seven dollars per million. He considered that either system would be efficient in removing both chemical and bacteriological impurities and that with the American system no less than 98 per cent. of the bacteria could be eliminated, besides which there was greater efficiency in removing colour and turbidity.

In the absence of Dr. HILL (Minneapolis) his paper was read by Dr. WESBROOK, the director of the public laboratories of Minnesota. The paper dealt with the essentials of pure water-supplies and the responsibilities in the matter of every municipality. Dr. Hill urged that it was the duty of the board of health not merely to keep itself informed as to the chemical and bacteriological condition of the water but to advertise the information it thus acquired. The dangers of propagating typhoid fever by means of water were discussed and the measures to be taken in stamping out an epidemic of typhoid fever were very fully outlined. Dr. Hill urged that it was quite as much the duty of the water authorities to supply pure water as it was that of the milkman to supply pure milk and that they with the fraudulent milkseller should be equally liable to penalties.

Mr. HOLTON, secretary to the Vermont board of health, then read a brief paper in which he alluded to the mysterious pollution of artesian wells which might be due to a cause quite half a dozen miles from the boring. He considered that it was practically hopeless to prevent the pollution of the sources of supply and that the only safeguard lay in filtration. The reason of this was that up to the present no law had ever been put into operation to restrain municipal authorities from polluting the streams. In systems of filtration he recommended the mechanical filter for small municipalities as not interfering with the fire service and as being more economical; the prevalence of waste in the use of water was much to be regretted and ought be checked. Since the very life of the citizens depended upon a pure water-supply it was most necessary to supervise the sewerage schemes of all towns and also to keep a careful watch over the working of the filter. Typhoid fever was not the only disease due to water and there were many cases of kidney trouble, &c., arising from the same source.

Professor STARKEY (McGill University, Montreal) gave a most interesting account of the experiments which he had carried out during the last four years with regard to the rivers St. Lawrence and Ottawa, and especially to a portion of the Ottawa at West Mount, Montreal. So far none of these waters would be condemned upon a chemical analysis and he could not even say that bacteriologically they were an actual source of danger. But it could not be denied that the bacteriological evidence of pollution as shown by the increase in the number of colonies per cubic centimetre was steadily on the increase, and this increase constituted a potential danger. He had no wish to be considered an alarmist but it must be evident that this was a condition which could not be overlooked. He then made reference to the epidemic at Winnipeg which arose from water that a few years before had been no worse than was that of the Ottawa or of the St. Lawrence of to-day. Sewage disposal must be reformed and efficient filtration enforced or else such a case as the Ottawa water off West Mount would soon become a serious menace to public health and other places would follow.

During the discussion which followed these papers Professor GLAISTER spoke at some length of the necessity for water-supplies being in the hands of the municipality and not, as too often was the case, the property of companies working for a profit. He was glad to say that water companies were rare in Scotland and now many of the large towns, London excepted, were providing new and pure municipal supplies at immense cost and from great distances. They were insuring the purity of their sources of supply either by purchasing the gathering grounds outright or by acquiring such rights over them as would enable their officers to enter and examine all sources of supply. As to filtration there was one difficulty: it did not remove the discolouration of peaty and moorland waters. The three essentials in protecting a water-supply therefore were: (1) the purity of gathering grounds when acquired; (2) the periodical inspection of sources to detect and prevent fresh pollution; and (3) the regular chemical and bacteriological examination of the supply.

Dr. OLDRIGHT (Toronto) alluded to the freedom of the Muskoka Lakes district from any traces of epidemic disease and hoped that all would use their influence to keep up the preventive measures for restraining pollution which now existed.

Dr. PROBST pointed out that while all States possessed laws restraining the pollution of rivers they were not uniformly enforced. In Ohio the board of health had recently been upheld in an attempt to prevent a city from using a certain water-supply. They must, however, remember that water was not the only cause of typhoid fever.

Dr. T. G. NASMYTH (Cupar, Fife) briefly alluded to the duties of the medical officer of health where river pollution was concerned and regretted that public authorities were hampered by a fear of affecting trade or injuring manufacturing interests.

Dr. BRYCE (Ottawa) said that in his official position he had inspected over 100 water-supplies; he considered that the death-rate from typhoid fever was low in Ontario and this was largely due to the supervision of the sources of water-supply. There was, however, a need to educate people in better methods of disposing of sewage and refuse.

After Dr. HOMAN had spoken on the legal aspects of the question as illustrated in the dispute between Chicago and St. Louis, the debate was closed by Dr. GROVES in a few words contrasting the conditions prevailing in Canada and in England. He pointed out the powers of the Local Government Board with regard to water-supplies and emphasised the necessity for going back to the primary rock source of supply, which must be protected from pollution.

PSYCHOLOGY.

TUESDAY, AUGUST 21ST.

Dr. A. R. DIEFENDORF (Connecticut) communicated a paper on

The Etiology of General Paralysis

which, in the absence of the author, was read by Dr. A. T. HOBBS (Guelph). Dr. Diefendorf's material was from 172 cases which occurred during seven years (1898 to 1905) in the Connecticut asylum. In this period the percentage of general paralysis to all other forms of insanity did not show any tendency to rise and ranged between 7·8 and 5·4 per cent. per annum. He found, however, that there was a distinct tendency for the number of female general paralytics to increase. He discussed statistically the more specific causative factors and assigned the greatest importance to syphilis, yet he considered that alcohol might be as capable of producing general paralysis as syphilis.

The PRESIDENT (Dr. W. J. MICKLE, London) then opened a discussion on

General Paralysis,

dealing with the delimitation of the disease under the chief headings of (1) symptoms; (2) morbid anatomy; and (3) pathogenetic relations.

Dr. W. ALDREN TURNER (London) referred to the etiological connexion between general paralysis and tabes dorsalis and stated that in his opinion the evidence pointed to syphilis as the great predisposing factor in both disorders, but also suggested that an exciting cause was to be sought for, such as trauma, alcoholism, nervous stress, or possibly, in view of Ford Robertson's researches, intestinal auto-intoxication.

Dr. L. H. METTLER (Chicago) believed that the variable prognosis held in regard to the ultimate outcome of general paralysis was due to the emphasis laid respectively upon the clinical manifestations or upon the pathological findings. He held that general paralysis was another phase pathologically of the tabetic process.

Dr. J. D. O'BRIEN (Massillon) referred to some experimental work which he had undertaken with reference to the bacteriology of general paralysis on the lines of the views formulated by Ford Robertson. He obtained an organism similar to the Klebs-Löffler bacillus in over 95 per cent. of general paralytics, but in other types of insanity in only 2 per cent. Animals inoculated had developed congestive seizures and other physical symptoms of the disease, and post-mortem examinations have revealed lesions similar to those seen in early general paralysis.

Dr. A. T. SCHOFIELD (London) read a short paper entitled "The New Psychology."

WEDNESDAY, AUGUST 22ND.

Dr. C. K. MILLS (Philadelphia) read a paper on

Cerebral Localisation in the Study of Psychiatry.

He started with a brief review of the literature and of personal observations concerning hallucinations and delusions, taking the view that these symptoms, regarded from the psychiatrical standpoint, never occurred as the result of the irritation, instability, or destruction, or combination of these, caused by lesions limited to cortical areas or centres of the senses conditioning these phenomena. The phenomena when they rise to the plane of insane hallucinations require for their explanation disruption or dissociation of the mechanisms which associate not only those centres with each other but with other parts of the brain. He reviewed many personal cases of coarse focal disease and then took up the question of diffuse destructive degenerative disease, such as cerebral syphilis and progressive pre-senile dementia and general paralysis, in which hallucinations and other genuine insane phenomena were present. He referred also to the observations of K. Schaffer and Sœmmerling on lesions of general paralysis in their relations to association and projection areas, and to personal observations on the anatomical and morphological peculiarities of the cerebral surface in cases of paranoia and in low types of brain generally. Here the preponderance of arrest and aberration was most noticeable in the great association regions. He suggested the classification of insanity on the bases of (1) structural arrest or embryonal apotentiality; (2) course and prognosis, especially as conditioned by developmental periods; and (3) election of cerebral mechanisms by exciting causes, bacteriological or toxic.

Dr. JOHN TURNER (Brentwood, Essex) gave a Lantern Demonstration illustrating his findings in the

Central Nervous System of Epileptics.

He held that this disease occurred in persons with a defectively developed nervous system, in whom there was a morbid condition of the blood which showed a special tendency to intravascular clotting, and that the immediate cause of the fits (either *grand* or *petit mal*) was sudden stasis of the blood stream, resulting from the blocking of cerebral cortical vessels by these intravascular clots.

Dr. SPRATLING (Sonyea, N.Y.), was to have given a Kinetoscopic Exhibition of Epilepsy but was prevented owing to unforeseen contingencies; he gave, however, a brief account of the technique of the process and showed one of the kinetoscope films.

Dr. ALDREN TURNER opened a discussion on

Epilepsy

by reading a paper dealing with psychical epileptic equivalents under the following heads: definition and general clinical features; psychical epilepsy and epileptic ambulatory automatism; masked epilepsy; post-paroxysmal psychoses; and varieties of psychical equivalents seen in epileptic mania, impulsions, and katatonic and transitory delusional states. He referred to psychasthenic conditions and the psycholepsy of P. Janet as a paroxysmal equivalent. Inter-paroxysmal "aura" sensations he did not look upon as true equivalents. Reference was made to narcolepsy.

The PRESIDENT dwelt upon the enormous number of mental states of the most varied kinds or forms which occur as epileptic equivalents and also upon the difficulty of diagnosing in some cases between epileptic equivalents of certain kinds and conditions which were part of many cases of epilepsy and, on the other hand, mental besetments or psychasthenic obsessions. He referred to P. Janet's view that psychasthenia generally constituted a mitigated epilepsy —a view from which he dissented.

Dr. MILLS also dissented from P. Janet's views on this point. He thought that a distinction should be made between psychasthenic obsession and epilepsy.

Dr. SPRATLING referred to the extreme rarity of pure psychical attacks without epilepsy—only ¼ per cent. of all attacks, while cases of psychical attacks interspersed between epileptic fits, *grand* or *petit mal*, occurred in the proportion of 5 per cent. of all attacks. He considered the dreamy state as over-estimated; it represented in most cases an intellectual aura preceding an attack. With reference to the study of epilepsy he thought that neuro-pathology had had its day. At the Craig Colony they were now searching the body of the living epileptic for the cause of the epilepsy. He looked upon the convulsion as the salvation of the epileptic's mind.

Dr. W. S. SPILLER (Philadelphia) referred to Friedmann's and Oppenheim's attempt to separate from epilepsy certain groups of cases usually classed as epilepsy. He described a case under his observation for five or six years which might be regarded as one of psychic epilepsy but which he considered as belonging to the psychasthenic group of cases.

OPHTHALMOLOGY.

TUESDAY, AUGUST 21ST.

There was an excellent attendance of members when Mr. R. MARCUS GUNN, the President, opened the session with a brief address of welcome. Before commencing the business of the day Mr. Gunn alluded to the great loss sustained by the profession, and by ophthalmology in particular, by the death of Dr. Buller of Montreal.

Mr. J. B. LAWFORD (London) introduced a discussion upon

Rare Forms of Choroiditis.

He especially desired to elicit opinions upon the etiology of some forms of choroidal disease, rare in his experience, which he proposed to bring before the meeting. The first group contained cases of widespread changes in the choroid closely resembling the disseminated choroiditis of syphilis but in which no syphilitic taint could be found; the second group was a form of choroiditis to which the term "localised exudative choroiditis" might be applied; whilst the third group was "family choroiditis," in which the disease attacked two or more members of a family and presented considerable variation in type.

Mr. A. Hill Griffith (Manchester) mentioned three rare varieties of choroiditis—one a limited choroiditis occurring in company with a descemititis, a second variety of plastic localised exudation, and a third variety commonly known as macular coloboma.

Dr. Stedman Bull (New York) had seen a number of cases of localised choroiditis occurring in young persons without any evidence of syphilis. The site of lesion was always near the optic disc or macula.

Dr. Risley (Philadelphia) called attention to a group of relatively rare forms of choroiditis which seemed to bear some relation to disease of one of the bony sinuses of the skull.

Mr. Arnold Lawson (London) cited two cases, one of which was an instance of localised choroiditis occurring with a keratitis punctata and limited vitreous change, and the other an instance of bilateral severe choroiditis in a boy the subject of chronic dyspepsia the result of severe pyorrhœa alveolaris. The treatment of the dyspepsia and the teeth effected a very marked improvement in the condition.

Dr. Webster Fox (Philadelphia) mentioned a rare case of choroiditis which seemed to follow an outbreak of cholesterine crystal formation in and about the macular region.

Dr. F. H. Verhoeff (Boston) read a paper on Obstruction of the Central Retinal Vein, illustrated by lantern slides. He gave the results of anatomical examination of six cases and expressed his belief that all the cases could be explained by the occurrence of an endophlebitis proliferans without thrombosis.

Dr. Casey Wood (Chicago) read a paper on Poisoning from Wood Alcohol. The characteristic ocular lesion was an optic neuritis going on to a post-neuritic atrophy and permanent blindness.

Dr. W. M. Killen (Belfast) gave a detailed account of McKeown's Irrigating Apparatus for the Extraction of Immature Cataract.

Dr. A. Freeland Fergus (Glasgow) read a short paper explanatory of his Method of Testing Binocular Vision.

Wednesday, August 22nd.

The Section was well attended, the room being crowded, over one hundred members being present at the time. The morning's work was largely occupied by a discussion upon

Sympathetic Ophthalmitis,

which was introduced by Mr. G. H. Burnham (Toronto). He took as his text the treatment of the eye sympathetically inflamed and the transmission of the disease from one eye to the other. He advocated the use of the combined treatment during the quiescent period after an injury before symptoms of inflammation appeared in the other eye.

Mr. Lawson read a paper dealing especially with

The Preventive Treatment of Sympathetic Ophthalmitis.

He pointed out that what was most needed were more authoritative lines upon which a surgeon could base his decision upon the propriety of attempting to save a dangerously wounded eye and which would guide him through the dangers and difficulties which might follow the attempt. Broadly speaking, there was no difficulty in a large number of cases of perforating wounds because the character of the wound and the extent of the injury had utterly destroyed all chances of saving the eye as a visual organ, and it was only in a few instances of this sort that cosmetic reasons would in the slightest degree justify a surgeon in running any risk of sympathetic ophthalmia by attempting to save the eye. But there remained a large class of cases which presented considerable difficulty and which must cause great anxiety. After enumerating and discussing these cases Mr. Lawson went on to summarise the whole matter by putting it in the form of five questions, each of which was discussed in turn. He urged the formation of a committee to inquire into and to collect evidence on the points he had raised.

Dr. J. W. Stirling (Montreal) confined his attention to the pathological aspect of the disease and pointed out that definite progress had been made in this department during the past year and that a distinct type of traumatic uveitis had been discovered. Further, a bacillus had been found the inoculation of which into the vitreous and circulation of a rabbit had set up a uveitis similar to that seen in sympathetic ophthalmia.

Dr. Theobald (Baltimore) was of opinion that congestion and tortuosity of the central retinal vessels, especially those below the disc, foretold commencing inflammation at the posterior pole of the eye, whilst a similar condition of the lower subconjunctival vessels betokened an inflammation of the anterior segment of the globe.

Dr. Weekes (New York) wished to draw attention to a small-celled infiltration of the uveal tract, and particularly of the ciliary body, that he had noted in five cases in which the disease had arisen after a prolonged period of quiescence. He believed that evidence of threatened sympathetic disease was present when such an eye showed evidence of deep-seated inflammation.

Dr. Verhoeff thought that recent infection of the scar accounted for some cases occurring after several years of quiescence.

Dr. Connor (Detroit) advocated treatment of the disease by large doses of salicylate of soda.

Dr. Colin Campbell (Toronto) recorded a case in which typical symptoms of the disease arose when the other eye had suffered from a chronic marginal ulceration of the cornea without perforation.

Dr. Risley had noted that in cases of true sympathetic irritation the symptoms often seemed to have a definite relation with strain upon the ciliary muscle of the injured eye.

Dr. E. L. Jones (Cambridge) wished to draw attention to treatment of the disease by subconjunctival injections of corrosive sublimate (1 in 3000) and salt solution.

Dr. Gordon Byers (Montreal) narrated a case of sympathetic ophthalmitis following Mules's operation. The symptoms of the disease first showed themselves a fortnight after operation and a month after the injury.

Dr. Edward Jackson (Denver) read a paper on Accommodation after Middle Life, in which he pointed out that there was no fixity with regard to the accommodative power of elderly people at any particular age.

Mr. Freeland Fergus read an interesting paper upon a condition to which he had given the name Sympathetic Degeneration. He had noted that in many cases in which one eye was severely damaged the other eye underwent a degenerative process characterised by a concentric permanent contraction of the visual field. Though loss of sight was often severe the condition never went on to complete blindness.

Dr. Herman Knapp (New York) read a paper on the Dependence of Accommodation and Motility on the Refraction of the Eye, in which he described an intimate correlation between the degree of ametropia and the degree of heterophoria. He went on to detail his method of testing patients.

Dr. A Duane (New York) criticised Dr. Knapp's assertions and did not think that there was so close an association between ametropia and heterophoria as Dr. Knapp stated.

THE ANNUAL EXHIBITION.

The accommodation provided for the annual exhibition at Toronto was in a series of rooms on the first floor of the main building of the University of Toronto. There were two large rooms placed at the disposal of the exhibitors and a number of smaller ones. Some of these latter were likely to be overlooked, but the exhibition as a whole was very convenient of access and was well attended after the first day. The number of exhibitors was not very large and there were few striking novelties or marked advances in any scientific directions. American firms were numerously represented, Canadian but sparsely, while several well-known British firms sent over interesting and representative exhibits. Special food preparations were numerous, surgical instruments and hospital furniture were fairly well represented, and various publishing firms had stands with copies of recently published works and medical atlases. The electrical and electro-therapeutical exhibits were among the most interesting, and some practical demonstrations were given of the manner of fixing the apparatus. There was but little display of sanitary apparatus and appliances, and no exhibition of motor-cars as has generally been the case in recent years. Some of the exhibits of firms of druggists presented excellent specimens illustrating the preparation of well-known drugs.

In reviewing the exhibits we may adopt the classification employed in previous years. We propose, therefore, to consider the various sections of the exhibition in the following order: (1) Surgical Instruments and Appliances; (2) Drugs; (3) Foods and Food Products; (4) Sanitary Appliances; (5) Mineral Waters, Beverages, &c.; (6) Publications; and (7) Miscellaneous.

I.—SURGICAL INSTRUMENTS AND APPLIANCES.

The exhibits of surgical instruments and appliances and special instrumental methods of treatment attracted more notice than some of the other exhibits. An interesting and extensive exhibit of surgical instruments was that of E. B. Meyrowitz of New York. These were chiefly instruments employed in the diseases of the eye, the ear, the nose, and the throat. Various apparatus for ophthalmological work were shown, including test cases and ophthalmoscopes. The Meyrowitz Javal ophthalmometer was one of the chief items in this firm's exhibit, and in addition there were instruments for testing muscular insufficiencies and for orthoptic treatment, including the Worth-Black amblyscope, the Derby stereoscope, and the phorometer, tropometer, and clinoscope of Stevens of New York. The transilluminator of Sachs of Vienna was also shown, enabling the interior of the eye to be transilluminated through the sclerotic, leaving the pupil free for observation. A complete outfit for ophthalmic operation was also on view. Various forms of otophone were exhibited; this is an instrumental aid to hearing for the deaf, the apparatus ending in a rubber diaphragm which rests against the ear and is not inserted into the meatus. Apparatus for mastoid and other aural operations were also shown. Some special instruments for operations on the nasal septum were prominently displayed, including those of Freer, Killian, and Ballenger. Messrs. Allen and Hanburys, Limited, of 48, Wigmore-street, Cavendish-square, London, W., and of Niagara Falls, New York, and Toronto, Canada, showed some surgical appliances, including operation theatre furniture and various instruments. Their special operation table of phosphor bronze with patent mechanism for altering the position of the patient, which we described in detail last year, was also prominent among their exhibits. In one of the small rooms of the exhibition was the complete assortment of surgical appliances and aseptic hospital furniture for operation theatres shown by Messrs. Down Brothers of 21, St. Thomas's-street, London, S.E. Patent aseptic tables were shown made of rounded steel tube and supporting glass shelves so arranged as to leave no interstices or corners to collect dust or fluid. Messrs. Down Brothers' surgical hand motor with drills, osteotomes and saws for cranial surgery, various instruments for the operation of bone-screwing, and antrum instruments and various forms of midwifery forceps and of other apparatus for special surgical operations were also in this exhibit. A small glass instrument cabinet for eye instruments was noteworthy, the sides being of opaque glass to prevent the instruments from being seen by patients. The Globe Manufactory Company of Battle Creek, Michigan, exhibited some ingenious and useful forms of apparatus for the fine division of various solutions. The "Globe" multinebuliser enables solutions of different kinds to be nebulised by means of one mechanically controlled pump and could be adapted for inflation of the middle ear and for the application of medicated vapours to the mucous membranes of the air passages. There were also various forms of pump, including an automatically controlled electric air pump and a hand-power pump. Some of the instruments were adapted for vibratory stimulation and massage and the degree of force employed was capable of regulation. This exhibit was an interesting one and practical demonstrations of the mode of working the nebulisers and vibrators were given. The De Vilbiss Manufacturing Company of 1218–1220, Jackson-street, Toledo, Ohio, U.S.A., and Windsor, Canada, showed various forms of atomisers, nebulisers, and powder blowers. The Clark and Roberts Company, of 315, Holton-place, Indianapolis, Indiana, showed some specimens of furniture for wards and consulting rooms, including the specialist's cabinet and chair, made of metal and capable of various adjustments. The Bausch and Lomb Optical Company of Rochester, New York, furnished some microscopes of good pattern and well-finished characters with firm stands and good adjustments. An improved Minot rotatory microtome with several new features possessed good adjustments for varying the position of the object to be cut and for regulating the thinness of the section desired. The J. F. Hartz Company, Limited, of Toronto, Ontario, and Detroit, Michigan, acted as agents in charge of several exhibits, among them the Victor Electric Company's electrical apparatus; for the Spencer Lens Company, Buffalo, New York, who showed some microscopes with a new form of fine adjustment and with automatic lubrication of both coarse and fine adjustments; for the Scanlan Morris Company of Madison, Wisconsin, who exhibited operating and instrument tables with porcelain tops; and for the Leucodescent therapeutic lamp. This was an exhibit of considerable interest. The apparatus consists of a single globe containing the incandescent form of electric lamp with a candle power of 300, 400, or 500. The globe is placed in a conical protecting hood. It is stated that the rays from this lamp form a faithful representation of sunlight and that the heat rays, the luminous rays, and the blue violet rays are all utilised in the apparatus. An interesting exhibit was the high-frequency and x-ray apparatus of the Electro-radiation Company of Boston, Massachusetts. Various forms of coil were shown, such as the "Hercules" and the "Ajax," with x-ray tubes and other apparatus. The Electro-Surgical Instrument Company of Rochester, New York, exhibited various forms of electrically lighted surgical instruments, including cystoscopes, urethroscopes, specula of various kinds, and gastro-diaphanes. The Dowsing Radiant Heat Company of London showed various forms of appliances, including an ingenious instrument, the "Arthromotor," which is an apparatus devised to apply active and passive movements to any joint of the extremities. It is capable of numerous adjustments and the amount and speed of the movement can be readily graduated and varied at will. The Stabbe Therapeutic Lamp Company of 709–710, Omaha Buildings, Chicago, Illinois; Messrs. T. A. Houghton and Co. of 123, Mill-street, Rochester, New York; and Messrs. C. F. Birtman of Chicago, Illinois, exhibited various electrical and electro-therapeutical apparatus.

II.—DRUGS.

At the annual exhibition owing to the never-ceasing labours of the pharmaceutical chemist and the continued succession of synthetic products yielded by the laboratory we may generally expect to find a number of new preparations or of new drugs. This year, however, the number was comparatively few, and more attention is now being given by the manufacturing druggists to the preparation of animal products and of curative sera. Although the number of exhibits dealing with drugs and pharmaceutical products was not large some of the preparations were of considerable interest. The stand occupied by Messrs. Parke, Davis, and Co. of Detroit and of 111, Queen Victoria-street, London, E.C., was of considerable interest as illustrating the application of recent bacteriological research to diagnosis and treatment. There were some flasks of experimental anti-sera which are being tested and are not yet upon the market, including anti-scarlet, anti-typhoid, anti-pneumococcic, anti-dysenteric, anti-gonorrhœal, and anti-streptococcic sera. A number of large tubes, 32 inches by 2 inches, contained cultures of various pathogenic and chromogenic bacteria. The typhoid agglutometer for applying the Widal test for typhoid fever, to which reference has already been made in our columns, was also exhibited. The methods used in the preparation and standardisation of drugs were also illustrated. A new preparation was thyroidectin, the dried blood serum of sheep and goats from which the thyroid gland had been removed, which is now used in the treatment of exophthalmic goitre. Messrs. H. T. Kirby and Co., Limited, of 14, Newman-street, London, W., showed specimens of purgen and of soft glycerine lozenges called glycecols, which seemed to be convenient and useful for the administration of some drugs. Phytin, a non-poisonous phosphorous preparation obtained from plant seeds, containing 22·8 per cent. of organically combined phosphorus, was exhibited by Messrs. Louis Ritz and Co., Hamburg, Germany. Fortossan, a soluble compound of phytin and milk sugar, suitable for infants and children, was shown by the same firm; also Salen, a new salicylic ester for the local treatment of rheumatism. Messrs. C. J. Hewlett and Son of 35–42, Charlotte-street, London, E.C., showed numerous pharmaceutical preparations and proprietary preparations, including the Mist. Pepsinæ co. cum Bismutho. A soluble preparation of iodine, non-irritating, and capable of hypodermic injection, was exhibited by the Burnham Soluble Iodine Company of Auburndale, Massachusetts. A stall was devoted to Antiphlogistine, prepared by the Denver Chemical Manufacturing Company of New York. Some pharmaceutical products of interest were on view in the exhibit of Messrs. Rigaud and Chapoteaut of 8, rue Vivienne, Paris; among them we may mention Apioline, the active principle of parsley, recommended in certain menstrual disturbances; Cerevisine, consisting of pure desiccated yeast cells; and phosphoglycerate of lime. The well-known products of Messrs. Fairchild Bros. and Foster of New York were exhibited, including panopeptone. Among their exhibits were hypodermic injections of trypsin and amylopsin and holadin—an extract of pancreas rich in trypsin, amylopsin, and lipase. Dioxygen, formerly known as Oakland hydrogen peroxide, which was stated to be available for internal use, was shown by the Oakland Chemical Company of 464, West Broadway, New York. Messrs. Allen and Hanburys exhibited their various well-known Bynin preparations, infant foods, and cod-liver oil. Kapsoli were also to be seen; these are a new form of pill inclosed in a thin, soft, and readily soluble *jujube coating*. Messrs. Burroughs Welcome and Co. of London, Sydney, and Cape Town, presented an exhibit of their well-known tabloid preparations, of the "Wellcome" brand of chloroform, of antitoxin for diphtheria, and of "enule" suppositories. In the exhibit of Messrs. Duncan, Flockhart, and Co., of Edinburgh, the various anæsthetic preparations for which this firm have been so long known were shown, also various forms of special pills and other pharmaceutical products. The useful preparation of Glycothymoline was shown by the Kress and Owen Company of 210, Fulton-street, New York. Messrs. Henry K. Wampole and Co. of Perth, Ontario, exhibited preparations of cod-liver oil, phospholecithin, various terpin compounds, and other special preparations. Various preparations of lactopeptine were on view at the stall of the New York Pharmacal Association, Yonkers, New York, among them the tablets, the elixir, and the elixir with phosphate of iron, quinine, and strychnine. The Palisade Manufacturing Company, of Yonkers, New York, exhibited its preparation Hæmaboloids which are stated to consist of *natural iron containing nucleo-proteids, extracted from* vegetable structures, reinforced by a synthetic organic iron compound, nutrient albuminoids, the hæmatinic principle of bone marrow, and some nuclein. Tubes illustrating the preparation of these substances were on exhibition. The Charles Phillips Chemical Co. of 128, Pearl-street, New York, exhibited a number of special preparations; among them we may mention the phosphomuriate of quinine and the milk of magnesia, to which we have drawn attention on previous occasions. Nepenthe, the preparation of opium prepared by Messrs. Ferris and Co., of Bristol, England, was shown among their exhibits, also various dressings and "caddies." The "ever-ready" caddy consists of a dust-proof receptable for dressings, so arranged that the required quantity can be readily unrolled and cut off. Messrs. Reed and Carnrick of Jersey City, New Jersey, had on view samples of protonuclein, peptenzyme, pancrobilin, and nephritin, the latter being an extract of the cortex of the kidney. The Abbott Alkaloidal Company, of Chicago, New York, Seattle, and London, exhibited granules and tablets containing a definite quantity of pure alkaloid, glucoside, or other active principle.

(*To be continued.*)

Salisbury Infirmary.—The annual meeting of the governors of the Salisbury Infirmary was held on August 31st under the presidency of the Earl of Radnor. The medical report stated that during 1905 the in-patients numbered 855 (an increase compared with 1904), the average stay of each in the institution being 20 days. 2936 out-patients and casualties were treated The financial statement showed that although at the end of 1904 there was a debt on the general account of £3747 and on the building account of £1152, at present there only remained a debt of £1080 on the general account, the building account had been paid, and it was added that for the first time for many years the income had met the expenditure. The Earl of Radnor alluded to the manner in which the medical staff assisted at the recent railway accident, and a special vote of thanks was awarded to them for their excellent services on that occasion.

THE OUTBREAKS OF PLAGUE IN TURKEY.

(From the British Delegate to the Constantinople Board of Health.)

Since the date of my last letter, which appeared in The Lancet of August 25th, p. 525, there have been no further cases of plague in Jeddah. The outbreak there seems to have come to an end in the last week of July and fortunately, with the exception of the two imported cases mentioned in my previous letter, there has been no extension of the disease to Mecca. All preventive measures except a simple medical visit have now been removed from arrivals from Jeddah.

Two more cases of plague, making ten in all, have been reported from the prison at Trebizond. The ninth occurred on August 18th and then, after an interval of 11 days without any fresh cases, a tenth was reported on the 29th. It appears that, in spite of urgent recommendations to *evacuate the whole prison if possible, and if that were* impossible to remove at least the prisoners from the infected ward, no measure of the kind was taken until August 20th, when 196 prisoners were transferred to the mosque of St. Sophia; but it was not until the 25th, or 19 days after the appearance of the disease, that the prisoners occupying the infected ward were transferred to another. Later reports state that the total number of prisoners in the prison was between 400 and 500 and not over 700, as at first stated, but the authorities themselves admit that the prison was crowded and insanitary. Preliminary reports have been received from the two bacteriologists sent to Trebizond from Constantinople; bacilli resembling morphologically the plague bacillus were observed microscopically in one of the earlier cases and those isolated from the last case not only gave characteristic cultures on gelatin but also, when inoculated into guinea-pigs, produced characteristic lesions in the organs from which the same bacillus was obtained.

At Adalia, on the southern coast of Asia Minor, two suspected cases of plague have been recently observed. The first case to which attention was called was seen on the evening of August 24th. The patient was a grocer ("épicier"), aged 29 years, living in the Tashlik quarter of the town. He was said to have fallen ill on the morning of the 23rd The symptoms, as briefly described in the telegrams, were those of an acute attack of bubonic plague, with the bubo in the left groin. He died at 9 P.M. on the 24th. On inquiry it was then found that a female servant in the same house, aged 20 years, had been taken ill seven days previously with high fever and other suspicious symptoms. When examined this patient was found to be convalescent but there was still a suppurating bubo in the groin.

In consequence of these cases a quarantine of 48 hours, with disinfection and application of the circular concerning rat destruction, was imposed against Adalia; and, no fresh cases having occurred in the interval, these measures were reduced on the 4th inst. to simple medical visit, with disinfection and application of the rat destruction circular. Nothing is known as to the origin of the infection in these cases. It will be recalled that a small outbreak of plague occurred in Adalia in the months of July and August of last year, and then, as now, their origin could not be traced. It is stated that the infected house is situated far from the sea and that the man who died was a poor grocer having no direct relations with importers from Egypt or elsewhere. It is added, however, that in a ditch behind the infected house some ten dead rats were discovered. It is also stated that the female patient had recently put on a dress that had belonged to a woman who suffered from plague in last year's outbreak, to whom she was related, and that this dress had been carefully hidden to avoid its being burnt with the other contaminated effects. The fact, if it be a fact, is of interest, though it would seem more logical to suppose that if the present cases were due to a revival of last year's infection the infective material has been kept alive by a succession of rats than to assume that it has lain dormant for a year in the folds of a dress. A bacteriologist has been sent to Adalia from Beirut to investigate the nature of the disease.

Constantinople, Sept. 6th

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 15, 1906.

"Return" Cases of Scarlet Fever.

RATHER less than a year ago we commented on a report issued by the Metropolitan Asylums Board on the subject of "return" cases of scarlet fever and diphtheria—cases, that is to say, which arise owing to infection conveyed by patients discharged as cured from the hospitals over which the Board presides.[1] That report was drawn up by Dr. A. G. R. CAMERON on the basis of returns extending over a period of 13 months, and embodied certain suggestions calculated to diminish risk from this source of infection. The period of time covered by the report was, however, obviously insufficient to allow any very certain conclusions to be reached, and we expressed the hope that further investigations would be made into a matter which so deeply concerns the welfare of the community. We are glad to see that this view has commended itself to the authorities of the Metropolitan Asylums Board and that the results of further study of the problem are now available. The present report is written by Dr. F. M. TURNER, the medical investigator for the Board, and is distinguished by the same industry and ability which characterised Dr. CAMERON'S work. Unfortunately, although the figures for three years are analysed, thus affording a more trustworthy statistical basis, the practical conclusions reached are no more encouraging than those of the former observer. Indeed, the result of the present investigation is to contradict or neutralise some of the conclusions which the earlier series of figures appeared to warrant.

Among the principal points emphasised in Dr. CAMERON'S report were the following two—that a large proportion of so-called "return" cases were in reality the result of mere coincidence—instances of purely accidental outbreaks of scarlet fever in houses to which cured patients had recently returned from hospital; and that in the majority of cases in which infection had really been conveyed by the discharged patient rhinorrhœa had been a feature of his attack, such nasal discharge being, therefore, the probable means by which infection was carried. The fact that "return" cases were most frequently met with in autumn and winter seemed to favour this mode of infection, as suggesting that a chill with consequent increase of coryza might have been contracted as a result of exposure to the cold outer air. Dr. TURNER has carefully tabulated statistics of 1000 consecutive cases at the Eastern Hospital, at which a careful record was kept of all cases showing rhinorrhœa, and he finds that while among 397 cases without complications of any kind 3·27 per cent. caused infection on returning to their homes, among 343 cases with rhinorrhœa only 2·62 per cent. proved infectious. Among 256 cases with other complications only 1·54 per cent. caused further outbreaks. The figures certainly appear to negative the suggestion that sufferers from nasal discharges are those most likely to convey infection. On further scrutiny of the figures there is, however, one point at least which deserves consideration in order that we may be sure that we are not drawing erroneous inferences. Thus it appears from the tabular statement showing the dates of discharge of the 1000 cases used for this inquiry that, whereas the "return" infectivity rates for cases without complications or with other complications than rhinorrhœa discharged after less than eight weeks' detention were respectively 3·6 and 3 per cent., cases with nasal discharge similarly treated showed a percentage of over 6·6 "return" cases. The low proportion of infective cases among the whole number of cases of rhinorrhœa may be due to the fact that no less than 180 patients who had exhibited this complication were detained in hospital over ten weeks, by which time the nasal infection had very probably become attenuated. In view of these considerations it would seem at all events premature to discard Dr. CAMERON'S warning as to the special danger attaching to these cases, at all events when they are discharged from hospital after only a short period of detention. It is to be regretted that at present the causal organism of scarlet fever is unknown, so that bacteriological examination cannot afford any assistance in determining the presence or absence of infection. It is remarkable, however, that in the case of diphtheria, in which the bacillus is easily found, insistence on a free bill of health from the bacteriologist has not tended to lessen the number of "return" cases arising at the institutions enforcing this method of precaution. Another feature of this recent report which is the reverse of reassuring is the practical contradiction of Dr. CAMERON'S contention that a large number of "return" cases of scarlet fever are pure coincidences. It thus appears that the public danger from discharged cases of this disease is very real. On the other hand, it must be borne in mind that at the present day scarlet fever is a comparatively mild ailment—it has even been suggested by Dr. L. C. PARKES that it might safely be treated as measles is, the patients not being removed to isolation hospitals. Dr. TURNER'S figures do not tend to support the belief that the mortality of "return" cases is greater than that of other patients, a suggestion that was in any case contrary to probability on theoretical grounds.

A somewhat curious point in which the present report is in agreement with the former is that a larger proportion of infecting cases is found among those patients who are detained for periods varying between eight and 12 weeks than among those whose stay in hospital is either shorter than eight or longer than ten weeks. It is legitimate to suggest that the reason for this peculiarity is to be seen in the fact that cases discharged in less than eight weeks are instances of mild infection, in which the power of contagion is also mild, while, on the other hand, a detention of over ten weeks usually gives time for the infective agent to die out. Another point in which the two reports are in accord is in uprooting the ancient belief in the special contagiousness of the peeling stage of the disease. We read in the present report: "The above figures are, therefore, what we should expect if late desquamation has no relation to power of conveying infection. If any such connexion exists it must be insignificant in amount." It is, however, unfortunate that while taking away this old criterion of infectivity our more recent mentors supply no other test to take its place. The difficulties of investigating in this direction are, however, very considerable in view of the multiplicity of fever hospitals and of the necessarily promiscuous manner in which cases from any one district are sent to one or another of them according to the existence of vacant beds. "Return" cases from one hospital are thus often sent to another, and the difficulty of tracing sources of infection is greatly increased. We congratulate the able medical officers of the Asylums Board on the extent to which they have overcome the difficulties presented, and hope that the subject of "return" infection may continue to receive attention at their hands in years to come. The matter is one upon which the public requires precise medical guidance.

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[1] THE LANCET, Nov. 18th, 1905, p. 1467.

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A Medical View on Facilities of Transit.

THE attention of the summer meeting of the British Association for the Advancement of Science was not strictly confined to the class of questions which would at first sight appear to be suggested by its title; it was extended to some which fall rather within the domain of sociology, and many of these had sides of medical interest. Considerations relating to density of population upon urban areas, and to the means by which the ordinary effects of such density may be diminished or controlled, are matters that are now being daily discussed by sanitarians of all sorts. At the meeting of the Association a paper was read by Professor E. MAHAIM upon Cheap Railway Tickets for Workmen in Belgium, another by Dr. LYNDEN MACASSEY on the Distribution of Population by Facilities for Rapid Transit, and a third by Mrs. (or Miss) MARY E. WOOD on Industrial Betterment, all dealing with one or another aspect of locomotion as a remedy for overcrowding and for the many sanitary and social evils which it involves, and the information given and views expressed might be considered with advantage by many of our own municipal authorities, within whose several boundaries these evils are more or less conspicuously apparent. It is necessary to speak with all reserve when comparing conditions practically known to us with others which are known only by description; but, subject to this reservation, it certainly appears from the account given by Professor MAHAIM that Belgium has at least approached an entirely satisfactory solution of one of the greatest social problems of the day. The railway companies in Belgium have seen their way to the institution of cheap trains for workmen to and from all parts of the territory, and for these trains weekly tickets are issued at very low fares. The weekly ticket for six daily return journeys costs less than one ordinary third-class return ticket, and the average length of each journey in 1904 was about 11 miles. The average fare was 12 centimes or less than five farthings of our money. The system was established in 1869 and at first progressed but slowly. In 1888 the number of weekly tickets sold was 11,000,000. It reached 21,000,000 in 1895, and 53,000,000 in 1905, when it was estimated that the tickets were used by one-sixth of the total industrial population. The practical effect is said to be that the country is rapidly becoming a single market, in which distances have no effect upon the price of labour. Moderate rents and other advantages, such as gardens with vegetables, have retained many town workers as dwellers in country districts, and town rents have been kept down by country competition. It is urged that the workers who travel to and fro every day avoid the promiscuous intermingling of the sexes which is so frequent a consequence of urban overcrowding, that the cheap trains tend powerfully to educate the travellers, and to promote the mobility of labour and the possibility of finding work in times of local slackness, as well as to equalise competition. Obviously they also afford to the sick the means of seeking an improved environment.

If we contrast this description with the state of things existing around us in London—and the problems in London may be regarded as the exaggeration of problems existing in other centres—the comparison cannot be said to be to our advantage. It is necessary, of course, to remember that the numbers to be dealt with in London are vastly larger than in Belgium, and that our suburban railways, besides being already taxed to the full extent of their powers, have been constructed at a cost relatively so enormous as to be prohibitory of very low fares. We have, therefore, to deal with different primary conditions. Not the least important of these would be the distance to be travelled in order to reach localities in which the price of land and other conditions would be such as to promote the construction of workmen's dwellings. The London County Council from the time of its first institution has been eager to afford facilities for industrial locomotion, and it may be doubted whether its more ardent spirits have always retained sufficient respect for the rights and the property of railway shareholders, who, there can be no question, have more than once had reason to congratulate themselves upon the protection afforded to them by Imperial Parliament. But, within wide limits, Parliament has allowed the Council to have its own way, and, judging by the present position, the wisdom which has presided over its decisions is not always apparent. The Council has set up a tramway system, the working of which may at present be studied in the southern and south-western suburbs, which are served by frequent cars running from the principal bridges and propelled by electricity on the "conduit" system. The lines for these tramways have been laid along the old coach roads, by the sides of which, for miles out of London, there still exists, an unbroken succession of dwelling houses of good construction, ranging in kind from stately mansions with large grounds to modest villas, worth in the days of their prosperity perhaps £150 a year. As an incident of tramway construction the whole of this roadside property has been depreciated to an extent the total of which could only be stated in millions, and it is depreciated as far as can be seen for every conceivable purpose. On many of the suburban roads two out of three of the comfortable houses which fringe them are to let, and there is no probability of their ever finding tenants. The medical profession is taking its share in putting down the value of this property by warning intending tenants solemnly against it. The noise of the tramway service is deafening and it is incessant. The creak and rattle and roar of the cars are only varied by the loud and discordant jangling of their gongs. The cars run from daybreak until midnight without intermission; indeed to certain points they run all night through at half-hour intervals. Facilities of transit, when they mean a fluid population and a rapid interchange of labour, are enormous blessings—their medical significance can be seen at once; but if the result of scientific endeavour towards such ends is the creation for a long period of an uninhabitable belt, the future uses of which it is impossible to foresee, medical men and sanitarians will all conclude that our recent endeavours have not been on the right track. For neglected, depreciated, and uninhabited house-property soon becomes a veritable nidus of disease and crime.

The Mortality of Children from Overlying or Accidental Burning.

A CONFERENCE was held late in the summer, it may be remembered, under the presidency of the Earl of ANCASTER, between some members of the executive committee of the National Society for the Prevention of Cruelty to Children and a deputation consisting of members of the Coroners' Society and of the British Medical Association. The subject of the conference was the frequency of deaths among infants from overlying or from accident arising out of neglect on their parents' part to guard them against the perils of fire. We referred in THE LANCET recently to the question of the prevention of overlying (a term which we venture to prefer to the obviously incorrect "overlaying" usually employed), and we have upon many occasions urged upon the consideration of legislators that the deaths of children occurring through their being left alone in rooms with unguarded fires is a matter with which the law might well interfere. There is no need for us to insist upon the importance of these topics in the eyes of all humane persons, and we are more concerned at present in considering possible remedies; but it may be useful to mention that, looking back upon the last six years, in 1903 there were 1619 deaths among children going to bed with their parents and 1660 in 1904, and that the returns made by 200 coroners show that within their jurisdictions 1634 children were burned to death in the years 1899 and 1900, 1425 of these cases occurring where there was no fire-guard. What are the remedies that have been proposed? Suggested legislation we find generally takes the form of additions to the existing law relating to cruelty to children, making it criminal exposure or neglect of a child to leave it in a room with an unguarded fire or to take it into the bed of its parents. We also find that, when the Act dealing with cruelty to children which is now in force was passed in 1904, Mr. BENJAMIN WAUGH, of the National Society for the Prevention of Cruelty to Children, tried to get included in it two clauses or subsections as follows: "The offence of 'exposure' shall further include the leaving of a child alone in a room with an unprotected fire," and "The offence of 'exposure' shall further include the perilous overcrowding of any infant in bed or the going to bed drunk with any infant." These clauses were, however, struck out, presumably in the face of opposition in Parliament, emanating from persons afraid lest the poor should be exposed, by their insertion, to penalties for offences due only to their poverty. Opposition on such grounds was reasonable, but the difficulty might have been got over.

At the conference of which we are writing Mr. C. L. ROTHERA, the coroner for Nottingham, suggested similar legislation to this but upon slightly different lines, making, so to speak, the starting point of criminal proceedings the death of a child upon whose body an inquest has been held, and whose death should be found to be due to either of the two causes referred to. The sections which he proposes should be added to the existing law run as follows:—

> 1. Whenever upon an inquest taken upon the body of a child under three years of age it is found by the jury that death has been caused by suffocation while the child was in bed with its parents or other adults, and that the suffocation was not the result of natural causes or of the presence of any foreign body in the throat or air passages, such finding shall be evidence that such parents or other adults have neglected such child in a manner likely to cause unnecessary injury to its health within the provisions of Section I. of the Cruelty to Children Prevention Act, 1904.
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> 2. Whenever upon an inquest taken upon the body of a child under ten years of age it is found by the jury that death has been caused through (*a*) burns sustained by the clothing of the deceased child taking fire at an open fire-grate, or (*b*) by scalds caused by the child having access to any vessel of hot liquid on the bars or hobs of an open fire-grate, the absence of an efficient fire-guard around such fire-grate shall be evidence of neglect on the part of the parents or other persons having the custody for the time being of such child under Section I. of the Prevention of Cruelty to Children Act, 1904.

The conference appeared generally to be in favour of legislation, but no definite opinion was expressed upon the relative merits of the two possible courses above indicated, and those present were fully sensitive of the difficulties attending legislative interference with the domestic privacy of the poor. We would point out that the proposition, which limits such interference to those cases in which an inquest is held, may result occasionally in the punishment of dangerous neglect of small children, but that its effect to *prevent* such neglect will be indirect only, uncertain, and slow. There would also be no punishment in the case of injury by burning, or of any injury by overlying, not resulting in death.

A proposal, however, to make the neglect punishable whenever detected implies inquisitorial methods which will be distasteful to some, and it will also be met by the objection that such an enactment would press hardly upon the very poor who cannot afford separate beds for their infants or to provide even the most rudimentary kind of fire-guard. We are not so sure that these arguments should carry weight. The ingenuity and industry of sober, kind-hearted, and hard-working parents, however poor, will generally be found equal to the task of devising some kind of crib or box for the baby with enough covering to maintain its warmth, though at the expense of a little self-denial to themselves; and we have little doubt that manufacturers could soon meet the demand, which does not now exist, for a fire-guard suitable for the poor. With the parents who are not sober, not kind-hearted, and not hard-working we need have no excessive sympathy if their failure to make any attempt to protect their children from obvious risks attracts the notice of the law. Further, we do not believe that those who would be called on to enforce any new provision of the law would allow it to press heavily upon the good citizen. We are only afraid that they would enforce it too lightly against the undeserving. In Germany, at any rate in some parts of Germany, there is a law that no child shall sleep with its mother. In many cases in which an answer of *non possumus* is given as a reply to a demand for sanitary and other reforms consideration of the example of other countries forms a valuable guide in estimating the possibility of the improvement at home. We are a little too ready to forget that we are not the only nation in the world which has to amend its laws in order to keep pace with the developments of modern civilisation.

Annotations.

"Ne quid nimis."

TRANSMISSION BY POST OF PATHOLOGICAL SPECIMENS.

THE Postmaster-General has recently revised the regulations governing the transmission by post of deleterious liquids and substances sent for medical examination or analysis, and on and from Oct. 1st such specimens may be sent by letter post, without registration, by qualified medical practitioners and qualified veterinary surgeons under the following conditions:—

1. That they are addressed to a laboratory or institute, public or private, or to a medical practitioner or veterinary surgeon within the United Kingdom.
2. That they are inclosed in a receptacle hermetically sealed, which receptacle must itself be placed in a strong wooden, leather, or metal case in such a way that it cannot shift about and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool), so packed about the receptacle as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle.
3. That they are conspicuously marked "Fragile, with care," and bear the words, "Pathological specimen," and also the signature and address of the medical practitioner or veterinary surgeon who sends them.

The packet must on no account be sent by parcel post. Any packet of the kind found in the parcel post, or found in the letter post not packed and marked as directed, will be at once stopped and destroyed with all its wrappings and enclosures. Any person who sends by post a deleterious liquid or substance for medical examination or analysis otherwise than as provided by these regulations is liable to prosecution. It is recommended that if receptacles are supplied by a laboratory or institute to medical practitioners or veterinary surgeons they should be submitted to the General Post Office, in order to ascertain whether they are regarded as complying with the regulations.

VIVISECTION IN GREAT BRITAIN AND IRELAND.

THE return recently made by the inspector (Professor G. D. Thane) to the Home Secretary upon experiments on living animals is of a nature to carry comfort to the minds of all reasonable folk, whether their leanings are more pronouncedly scientific or humanistic. On the one hand there is evidence of good experimental work in progress, and on the other there is convincing proof of careful prevention of cruelty. To the antivivisectionist, of course, such a return is sorry reading. That experiments upon living animals should be permitted at all is to him so monstrous that he can only regard the merciful circumstances of modern research with impatience. We may leave him on one side, however, while we recognise gladly the increased use of careful and humane experiment, which goes hand in hand with the more widely recognised need for such work on the part of those responsible for the public health of the country. Several county councils and municipal corporations have their own laboratories in which bacteriological investigations are carried on, including the necessary tests on living animals; many of them have arrangements by which similar observations are made on their behalf in the laboratories of universities, colleges, and like institutions. The Board of Agriculture, too, has laboratories which are registered for the performance of experiments having for their object the detection and study of disease in animals. A large number of the experiments alluded to in the report were made on behalf of official bodies with a view to the preservation of the public health. To any unprejudiced reader of the tables which are included in the inspector's report it is quite plain that licences and certificates are granted only on the recommendation of persons of high scientific standing and that the licensees are fitted by their training and education to undertake the various investigations. Of the experiments performed without anæsthetics the vast majority are mere inoculations or the abstraction of a minute quantity of blood for examination. They were, in fact, such procedures as are in common use upon the persons of human patients, in whose case, however, they are not distinguished by the title of "vivisection experiments."

THE STATISTICS OF THE UNEMPLOYED: AN INTERESTING POINT.

THE problem of the real cause and actual extent of unemployment, now so prominently under discussion, is mainly a social, economical, and political question, but its public health aspect cannot be ignored. A correspondent has recently contributed to the *Times* an interesting article on this subject in which it was asserted that whereas, in consequence mainly of the steadily maintained decline in the birth-rate, the proportion of adults in the English population had increased considerably during the twenty years 1881–1901, the proportion of workers for their support had decreased during that period. This conclusion was based upon statistics derived from the reports on the censuses in the above-mentioned years. As a matter of fact, the householder's schedule used at those censuses required no statement as to whether an individual was in or out of employment at the time of the census, and the reports therefore can throw no direct light upon the question of unemployment. They do, however, show the number and ages of persons stated in the schedules to be following any definite profession, trade, or occupation; they also show the numbers of children and adults not stated to be following any definite occupation, or stated to be living on their own means, or returned as pensioned, or retired from definite occupation. Thus the enumerated population is shown in the tables as either occupied or unoccupied—that is, as following or not following some definite occupation, whether in or out of work at the time of the census. The article referred to points out that between 1881 and 1901 the number of persons returned in the census schedules as not following any definite occupation showed a larger increase than did the number of those persons who were returned as following definite occupation, and it was argued therefrom that the productive force of the nation is declining. As the census figures upon which this conclusion is based relate to the entire population of men, women, and children aged upwards of ten years, in order to estimate the true import of this increase in the proportion of the unoccupied it is necessary to examine the facts for males and females separately. The result of such examination is to show that the increase of unoccupied males aged upwards of ten years between 1881 and 1901 did not exceed 27 per cent., whereas the increase of males at those ages returned as following definite occupations was equal to 31 per cent. Among females at those ages, on the other hand, the number returned as unoccupied showed an increase of 37 per cent., while the increase among those returned as following some definite occupation did not exceed 23 per cent. The number and proportion of males engaged in definite occupations thus showed an increase during the 20 years referred to, whereas the number and proportion of females so engaged had declined. The decline in the proportion of females following definite occupations was one of the most surprising features of the report on the last census in 1901. The marked increase between 1881 and 1901 in the proportion of women engaged in professional and commercial occupations was far more than counterbalanced by the marked decline in the larger number of women engaged in domestic indoor service, in agricultural occupations, and in textile manufacture This is not the place to discuss the economic result of this apparent decline in the definite employment of women of the working-classes apart from their household and family duties, but should this decline be mainly due, as seems to be very probable, to the improved condition of the weekly-wage class, rendering it decreasingly necessary for women to follow definite occupations after marriage, the changes noted may be viewed with satisfaction. Any decline in the proportional employment of married women in definite occupation or handicraft should clearly promote the cause of public health and tend to reduce the present excessive rate of infant mortality. According to the report on the census in 1901 52·3 per cent. of unmarried females in England and Wales, aged upwards of ten years, were engaged in definite occupation, while of the married or widowed women no less than 13·2 per cent. were so engaged; and in Blackburn, for example, 37·9 per cent. of the married or widowed women were definitely employed. No similar information was published in previous census reports, and we must wait for the report on the next census for further explanation of the evidence of the decline in the proportion of women following definite occupations, derived from published census statistics.

THE SOCIETY OF JESUS AND THE HEALING ART.

AN Italian correspondent, writing under date Sept. 8th, says: "The event of the week, ecclesiastical and political, has been the election of the 'Black Pope,' as the General of the Jesuits is familiarly called, and the occasion may be utilised to remind us of what may be set down to the credit of a society not too favourably regarded by the non-Catholic world—namely, its services to the sciences in general and to the healing art in particular. Founded by Loyola to counterpoise, and if possible to defeat, the Reformation promoted by Luther, it pressed into its service every weapon that could reinforce it in the conflict, and, strange as it may seem in an organisation accused of 'obscurantism,' it enrolled the man of science and the medically trained missionary under its banner, inscribed '*Ad Majorem Dei Gloriam.*' In nature-study, as well as in mathematics pure and applied, the Jesuit in the early post-Renaissance period made his mark in nearly every department, and the missionaries of the society, mainly Portuguese, in furtherance of its poet-laureate's ideal—

> 'Loyola Lutheri triumphos
> Orbe Novo reparabit ultor'—

over-ran the new world and the unexplored regions of the old, making converts to the Church and enriching the scientific knowledge already theirs by concurrent observation and research. What visitor to the Vatican has failed to be struck, in the Gallery of the Geographical Maps, with the sagacity of the missionaries who framed them—the watershed of sub-equatorial Africa, for example, being given, hypothetically indeed, but with an approximate accuracy which it was reserved for the latter half of the nineteenth century to complete and to ratify? Again, what student of the medical past has forgotten the beautiful story of the discovery of the quinine-bearing cinchona and the introduction into the physician's armoury of 'Jesuits' Bark,' first exhibited in the seventeenth century, and since then, by pharmaceutical refinements, developed into the salt which is to the European sojourner in the tropics what the Davy lamp is to the miner? Finely told in Sir Thomas Watson's 'Practice of Physic'—a 'professional classic,' if only for the scholarly finish of its language and the artistic cadence of its periods—the story redounds to the credit of the Society but for whose emissary the discovery might have had to wait, who knows how long! Even in the modern day the Jesuit remains true to his scientific traditions—witness those worthy descendants of the Père Boscovich, the Padre Secchi, famed for his 'Solar Physics,' and his successor in the directorate of the Vatican Observatory, the Padre Denza. The latter, indeed, besides his work in seismology perpetuated on identical lines by members of the Society throughout Italy, will always be remembered for his demonstration of the origin of that scourge of the Mediterranean seaboard, the wind known as the 'scirocco.' Having surmised that the said wind was always coincident with a sand-storm in the Sahara, he stationed a correspondent at the border-land between the Tell, as cultivated Algeria is called, and the great desert, with instructions to telegraph to him on the Italian littoral whenever a sand-storm was brewing. '*Detto fatto*'—the correspondent acted accordingly. On came the wind, the Padre Denza being duly prepared for its advent, at various points of the Italian shore, with huge façades of cardboard wet with gum. And sure enough, as it passed oversea inland a thick layer of sand was deposited on the said 'façades,' thus explaining what had been observed, but not traced to its cause, by Celsus—namely, the sense of heat, of weight, of general depression, and lowered vitality experienced during the prevalence of the scirocco—an experience not to be escaped till, by reclamation and crop-culture, the Sahara ceases to be the 'sand ocean' it has been from time immemorial. Inspired by the traditional genius of the Society, the Padre Massaia in his thrilling record of mission work thirty—nay, forty—years ago in the Galla country (west of Abyssinia), ascribes to his nature-study and his command of the healing art the success of the enterprise which brought him the gratitude of the Pope and the title of Cardinal. Setting out as a simple monk about the middle of last century long before the opening up of Egypt to civilisation and the present facilities for travel, he reached the scene of his labours with only the Bible and the crozier of St. Francis. First he began to make friends with the savage natives by teaching them the 'arts of peace' and of civilised life—down to tenement structure, cooking, and clothing. All this time he was quietly mastering their language, till he constructed its grammar for them, and finally translated into it portions of Holy Writ. Then he set up a printing press (thanks to subsidies from the Propaganda) and taught the younger of the natives to read. Still his progress—well-nigh single-handed—was slow, till the periodical outbreaks of small-pox gave him his opportunity. He vaccinated as many of the natives as he could prevail upon to submit to the operation and when the tribe at the next epidemic of the disease found his patients 'immune,' while those who had held back from becoming so either died or emerged from it disfigured, their liking for him deepened into love and a superstitious belief in his power. The success of his mission was then assured. Yes, the poet-laureate of the society was warranted in typifying the mission march of Loyola as that of a well-meaning, beneficent giant:—

> 'Tellus gigantis sentit iter; simul
> Idola nutant; fana ruunt; micat
> Christi triumphantis tropaeum,
> Cruxque novos numerat clientes.
>
> Videre gentes Xaverii jubar
> *Igni corusco nubila dividens,*
> Cœpitque mirans Christianos
> *Per medios saltare Ganges.'*

But it was in the degree in which they reinforced religion with science, above all with the healing art in its widest sense, clinical and hygienic, that the Jesuit apostles effected their most salutary work—a work which made them the progenitors, so to speak, of Livingstone and Bishop Pattison and Dr. Stewart of Lovedale—a work which, if pursued in the spirit of these pioneers, will go far to conciliate for the Society an admiration and a sympathy hitherto withheld from it even among Catholics themselves."

POISONING BY BROMOFORM.

A NUMBER of fatal cases of poisoning by bromoform have been recorded in a recent number of *La Semaine Médicale*. In 1890, shortly after the introduction of the drug into medicine, M. Nonwelaers of Brussels described the case of a child, 15 months old, who died 14 hours after the administration of a mixture which was ordered to be given daily in doses corresponding to 12 drops of bromoform, but this dose was exceeded. In 1902 Dr. Krioull of Wenden reported the case of a girl, aged three years, who died after the daily administration of several dessert-spoonful doses of a 12 per cent. mixture which had been prescribed previously for a child 11 years old. In 1904 Dr. Roth of Brunswick witnessed the death of a child, five years old, from taking a dose of a mixture corresponding to five grammes of bromoform. The child died in coma in spite of medical attention. Quite recently a similar case came to the notice of Dr. Haakma Tresling of Winschoten. A child was told to empty a bottle containing a bromoform mixture which had been prescribed for another member of the family. Instead of obeying he administered it in play to a younger brother, aged four years, with serious results. The child was seized with dizziness, followed by collapse, stertorous breathing, and relaxation of the muscles. It was not found possible to make him vomit, and eventually he succumbed. In this case a dose of from four to five grammes of bromoform proved fatal. As bromoform is so largely used in the treatment of whooping-cough the danger of administering excessive doses should be recognised.

WORKHOUSES AND THE TEMPORARY CARE OF INSANE PERSONS.

A SAD case of suicide recently took place at Chard, the facts of which we take from a full report contained in the *Chard and Ilminster News* of Sept. 1st. Briefly they are as follows. Mr. Napier Close of Chard was visited at his surgery late one afternoon by a young woman in an excited condition who asked him to take care of her. He formed the opinion that she was insane and having sent for the relieving officer, who was not at home, obtained the assistance of a police sergeant, who conveyed her to the workhouse, taking with him the following written message to the master from Mr. Close: "Mary Jane Hayball is suffering from melancholia and has threatened to do away with herself. Please admit her to the workhouse until the return of Mr. Hawker [the relieving officer] who will take over the case." At the workhouse the master refused to accept responsibility and was unwilling to take the patient in, protesting that the workhouse was not a fit and proper place for her, but afterwards he allowed her to be placed in the reception room and Mr. Close himself obtained the services of a woman living in the neighbourhood to take charge of her temporarily. The relieving officer returned to the workhouse about half-past ten at night, took no steps to have the patient removed, and left her in charge of the attendant mentioned. Shortly afterwards she became violent, overcame the resistance of the woman in charge of her, whose cries for assistance were either unheard or disregarded, and escaped through a window, committing suicide by drowning herself before she could be recaptured. The conduct of those in immediate charge of the workhouse and their responsibility in the matter do not appear to have been very closely inquired into by the coroner, who seems to have told the jury that they were not concerned with such questions. The attitude of the Chard guardians, however, seems to be shown fairly clearly by a speech which their chairman made at the inquest before the proceedings began. This gentleman, according to the report referred to, "expressed to the coroner his own regret and the regret of the board on the unfortunate occurrence which had occasioned his (the coroner's) presence that afternoon. He held, and the board of guardians held, that it was not the fault of any of the officers within the walls. They, however, thought that greater care should be exercised by medical officers in admitting cases of that sort to the workhouse. The workhouse was not a lunatic asylum, it was a place for the relief of the poor and others who were from time to time glad to seek refuge there. The workhouse was not a place for people who were *non compos mentis*. He begged to express their deep regret and inform the coroner that they would be very careful to see that in future no persons who were suffering as this poor unfortunate woman suffered would be admitted within the walls." This address seems to be in accord with the views of the board which held a meeting shortly before the inquest took place. We would point out to the Chard board of guardians, however, that while a workhouse is not a lunatic asylum, and possibly the Chard workhouse may be ill fitted for an emergency such as that which occurred, the temporary charge of a person who has suddenly become insane is not by any means an unusual thing to be undertaken at a workhouse, and constitutes a form of relief of the poor which sometimes is greatly and urgently needed. Perusal, moreover, of some of the sections of the Lunacy Acts, 1890 and 1891, should satisfy the Chard board of guardians that the legislature has done its best to provide that temporary safety should be obtainable for the afflicted person in a workhouse until the somewhat complicated machinery provided for his necessary protection can be set in motion. In particular, Section 20 of the Lunacy Act, 1890, orders that "if a constable, relieving officer, or overseer is satisfied that it is necessary for the public safety or the welfare of an alleged lunatic, with regard to whom it is his duty to take any proceedings under this Act, that the alleged lunatic should, before any such proceedings can be taken, be placed under care and control, the constable, relieving officer, or overseer may remove the alleged lunatic to the workhouse of the union in which the alleged lunatic is, and the master of the workhouse shall, unless there is no proper accommodation in the workhouse for the alleged lunatic, receive and relieve and detain the alleged lunatic therein; but no person shall be so detained for more than three days, and before the expiration of that time the constable, relieving officer, or overseer shall take such proceedings with regard to the alleged lunatic as are required by the Act." The question of the control of lunatics, whether paupers or not, with regard to whom it is evidently of urgent importance that they should be placed under care and control, has been considered in framing the Lunacy Acts, with a view to preventing precisely such occurrences as took place at Chard;

nd if it be urged by the Chard guardians that they have no roper accommodation to meet emergencies which at any time ay arise, and which may end in the needless sacrifice of uman life, the answer may be that the introduction of such ccommodation would render their workhouse a more useful nstitution for the relief of the poor of the union. Three ersons seem to have done their best to meet the requirenents of the case above recorded and it is a matter of regret hat success was denied to their efforts: Mr. Napier Close, vho certainly did his utmost in unusually difficult circumtances on behalf of his patient, Police-Sergeant Attwood, nd Mrs. Templeman, who was placed in charge of the nsane person, and who, according to her account, struggled vith her unaided for an hour before she broke away.

THE SUMMER: JUNE, JULY, AND AUGUST.

FOR the purposes of meteorological statistics the three months from June to August are generally taken as comprising the summer in this country, but the heat did not reach its culminating point this year until the 31st of last month or a day or two later. The chief characteristics of the three months here discussed were not their warmth, which was not at all exceptional, but their great and consistent dryness at nearly all places situated towards the south and south-east and in the midlands, and also the large number of hours of sunshine recorded. Of all the places having a sufficiently trustworthy average only two—Scilly and Nottingham—show a deficit, although the excess was only very slight at Aberdeen. Among the localities given in the table the spots with the greatest aggregate number of hours were Jersey, Clacton-on-Sea, Bournemouth, Torquay, Folkestone, Shanklin, and Lowestoft. The greatest excess over the normal, however, was in London (Westminster), where the total sunshine of 693 hours equalled seven and a half hours daily. The large excess of 177 hours for the three months is equal to nearly two hours per day more than the average of the records of the past 25 years warrants. The dullest spots were Glasgow and Manchester, the aggregate hours of sunshine only representing a mean daily duration of a trifle more than five hours at the former city and less than five and a half hours at the latter. The relatively small amount of sunshine at Aberystwyth was due rather to sea fogs and mists than to cloud, and the same unwelcome phenomena also robbed Brighton and a few other resorts on the south coast of several sunny days. The days on which rain fell were about twice as numerous in the north and north-west as in the south and south-east, while in the south-west Torquay especially was noted for its very few rainy days. But everywhere the total fall of rain for the three months was less than the normal. August was, however, rather wetter than usual at many places in the north and north-west. At Clacton-on-Sea rain was only experienced on 20 days and at Lowestoft on 21, against 44 at Blackpool, Harrogate, and Aberdeen, 50 at Glasgow, and 58 at Manchester. A notable example of the effect of local thunderstorms is afforded by the total rainfall at Lowestoft and Great Yarmouth. The Suffolk resort had an aggregate of only 2·44 inches, while at the Norfolk resort, only about nine miles further north, the total yield of the gauge was as much as 5·90 inches. In regard to temperature the summer was remarkable both for the few unseasonably cold spells and for the few extremely hot ones. As a general rule the thermometer was slightly above the average both during the day and night. This is fully supported by the difference from the normal, which, except in a place here and there, showed a slight excess of warmth. The only places with a mean daily maximum of 70° or above were London (72°), Nottingham, Bath, and Bournemouth, and the only spots with a mean minimum as low as 50° were Aberdeen and Harrogate. The warmest nights and most equable temperature were, as usual, experienced in the Scilly Isles, while the places with the greatest diurnal range of temperature were Nottingham, Bath, and London. It is probably only a curious coincidence that the mean temperature at two such dissimilar places as Jersey and Margate was identical. The absolutely highest temperatures registered within the three months all occurred on August 31st. The highest was 93° at Nottingham, followed closely by 91° in London (St. James's Park) and at Margate, 89° at Birmingham and Manchester, and 88° at Bath. During the summer as a whole maxima as high as 80° were very rare and only occurred in the southern, eastern, and inland districts.

—	Temperature (degrees).				Rainfall (inches).			Sunshine (hours).	
	Mean maximum.	Mean minimum.	Mean temperature.	Difference from average.	Days with rain.*	Total fall.	Difference from average.	Number of hours of sunshine.	Difference from average.
Blackpool	65	52	58·4	−0·3	44	6·28	−2·39	680	+150
Llandudno...	63	54	58·6	+0·7	37	5·88	−1·48	671	+119
Aberystwyth	63	54	58·6	—	—	—	—	645	?
Scilly	64	57	60·1	+0·3	37	4·62	−2·26	654	−38
Jersey	69	55	62·2	+0·5	27	1·88	−5·04	787	+52
Plymouth	66	54	60·2	−0·3	38	5·83	−1·25	671	+53
Torquay	67	55	60·9	+0·3	28	4·65	−2·64	760	+102
Shanklin	—	—	—	—	—	3·32	?	752	?
Bournemouth	70	53	61·1	?	28	3·23	?	771	?
Brighton	67	54	60·8	−0·3	23	3·85	−2·62	735	+60
Folkestone	67	52	59·7	?	22	2·60	?	759	?
Margate	69	55	62·2	+0·8	25	2·10	−2·37	728	+146
Clacton	68	54	60·9	−0·2	20	3·12	?	778	?
Lowestoft	66	53	59·6	+0·3	21	2·44	−4·13	751	?
Yarmouth	66	55	60·3	+1·0	27	5·90	−1·08	?	?
Scarborough	66	53	59·2	+1·2	33	4·01	−2·99	583	?
Aberdeen	63	50	56·2	+0·4	44	5·86	−1·97	512	+9
Harrogate	67	50	58·7	+1·1	44	6·56	−1·37	578	?
Bath	70	52	60·9	−0·2	27	5·51	−2·35	710	+114
Glasgow	64	51	57·6	+0·9	50	8·58	−1·59	474	+37
Manchester	69	53	60·7	+1·6	58	6·58	?	497	?
Nottingham	71	51	61·2	+1·0	28	3·24	−4·14	617	−7
Birmingham	69	52	60·3	+1·3	34	4·70	−3·14	535	?
London	72	54	62·8	+0·6	24	4·20	−2·78	693	+177

* A day with rain is one on which at least 0·01 inch has fallen.

THE TOXIC ACTION AND LOCALISATION OF RADIUM EMANATIONS.

M. Ch. Bouchard and M. V. Balthazard have extended a research, which was first conducted in collaboration with the late Professor Curie, on the toxic action on animals of the emanations from radium, and have determined to what extent the different tissues and organs are affected.[1] They have previously shown that radium emanations are toxic to mice and guinea-pigs when administered by the respiratory tract. By a modification of the method formerly employed they now demonstrate that the emanations are toxic to guinea-pigs when radio-active sulphate of barium is introduced into the peritoneum. Two grammes of the salt, having an activity of 5000 and containing about five to six milligrammes of sulphate of radium, were inserted in a sac of collodion and introduced into the peritoneal cavity under aseptic conditions after laparotomy. Guinea-pigs treated in this manner succumbed on the tenth to the fifteenth day. It was found that the emanations are localised chiefly in the suprarenal capsules, one gramme of which contains as much of the emanations as 4·7 grammes of spleen, 11·4 grammes of lung, 15 grammes of skin, 60 grammes of liver, and 100 grammes of kidney.

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[1] Comptes Rendus, July 23rd, 1906, p. 193.

FOREIGN BODY IN THE ORBIT FOR NEARLY FOUR YEARS.

IN the *Australasian Medical Gazette* for June Mr. F. A. Pockley has reported the following remarkable case. On May 21st, 1902, a boy, aged nine years, was brought to him for advice. Eight days before, while playing, the boy was knocked against a paling and fell with another boy on top of him. He immediately pulled a splinter of wood out of his right eye and there was slight bleeding. He was stunned by the fall and for two days had headache and occasional retching. When he recovered from the concussion, which was only momentary, he had no perception of light in the right eye and the eyeball was somewhat protruded. On examination the right eye was found proptosed. An inch below the eye and slightly to the nasal side was a small cicatrix. The lower part of the orbit was tender. There was an offensive smell from the eye. The ophthalmoscope showed great swelling and tortuosity of the veins near the disc. Under chloroform an incision was made through the conjunctiva midway between the inferior oblique and the inferior rectus muscles and a splinter of hard wood three-quarters of an inch long and three-sixteenths of an inch thick was removed. Careful probing revealed no other foreign body but the wound was syringed out and left open and a gauze drain was left in for a few days. By May 29th the eye had receded to its normal position and there was no pain or tenderness on pressing it backwards into the orbit. The optic neuritis became much more marked and atrophy of the nerve followed. In February, 1906, the boy was again seen. His mother brought a piece of wood, one and a quarter inches long and one-eighth of an inch thick, which he "had found sticking out of the corner of his eye" on Jan. 31st on waking in the morning. There had been no pain or swelling previously and nothing had been noticed when he went to bed the night before. On the second splinter were dentations which exactly fitted into ones on the first. Cases of foreign bodies being lodged in the orbit for some time without the patient being aware of it are not very rare, but the period is generally much shorter than in the present case, which amounted to nearly four years. In Mr. Brudenell Carter's well-known case a portion of a metal hat-peg, three and a quarter inches long, remained in the orbit two or three weeks without the patient being aware of it. Mr. H. R. Swanzy has recorded a case in which a piece of wood, three quarters of an inch long and half an inch wide, remained undetected in the orbit for many weeks.

THE OUTBREAK OF DIPHTHERIA AT THE LAMBETH PAROCHIAL SCHOOLS.

WE have received a pamphlet with the title, "History of a Diphtheria Outbreak at the Lambeth Parochial Schools, West Norwood, May to July, 1905," by Dr. Joseph Priestley, medical officer of health of the metropolitan borough of Lambeth. The report is a most interesting one and contains many observations well worthy of note. An outbreak of diphtheria occurred during May, June, and July, 1905, amongst the children at the Lambeth Parochial Schools, situated in Elder-road, West Norwood. The majority of the cases were of a mild (chiefly nasal) type, which naturally gave rise to difficulties, not only in diagnosis but also in the adoption of the usual preventive measures. The slightness, and in some cases the apparent absence, of the well-known clinical symptoms of diphtheria rendered it necessary to carry out minute and careful bacteriological examinations both of "suspects" and of "contacts." These investigations were all carried out in the borough laboratory and reflect great credit on the workers in that institution. Of special interest was the presence in the throats and noses of some of the patients of a mixed infection—viz., (*a*) Vincent's organisms, in addition to (*b*) Hoffmann's pseudo diphtheria bacilli; and (*c*) Klebs-Löffler diphtheria bacilli. By means of the presence in some of the cases of these Vincent's organisms the source of the outbreak was definitely traced. We may remind our readers that Vincent's organisms consist (1) of fusiform elongated bacilli varying in length from 6 to 12 μ and from 1 to 1·5 μ in breadth, vacuolated, motile or non-motile, not staining with Gram's fluid but staining irregularly with Ziehl's liquid; and (2) fine long spirilla of varying lengths, sinuous and very motile, staining badly (or not at all) with the usual staining fluids. By permission of Professor H. Vincent a good illustration of these organisms has been inserted in the report. The presence of Vincent's organisms was due to a concurrent attack or outbreak of either ulcerative stomatitis or the ulcerative form of Vincent's angina, which occurred at (and about) the time of the diphtheria outbreak. In THE LANCET of July 16th, 1904, p. 135, we published a paper by Dr. H. W. Bruce on this affection, who pointed out that the disease was of importance because it was very likely to be mistaken for diphtheria. In THE LANCET of May 13th, 1905, p. 1260, will be found an article upon Vincent's angina from the pen of Professor Vincent himself. From this description it will be seen that it is a disease allied to diphtheria and other forms of throat troubles and appears at times to be contagious, spreading from person to person, either by direct contact or indirectly through the use of towels, drinking utensils, and *so on*. The *disease exists* in two forms: (1) diphtheroid (like diphtheria) or (2) ulceromembranous (deep ulcerations of the membranes over the tonsils and palate). It may appear at any age but is especially frequent amongst children from eight to ten years and amongst young adults from 18 to 30 years of age. Its occurrence at the time of the outbreak of diphtheria at the Lambeth *schools is of great* interest and demonstrates the value of careful bacteriological *examinations*. Dr. Priestley gives a good account of the details of the outbreak of diphtheria and of the means which were taken to check its *spread*. Many patients were found who appeared to have no clinical symptoms of diphtheria but in whose throats or noses (or both) the pathogenic bacillus was found. These individuals were capable of conveying the disease to others, but there was a timidity in removing them to the Metropolitan *Asylums Board* hospitals. Dr. Priestley mentions that the difficulties were added to by the doubt in the minds of some of the guardians as to the value of the bacteriological examinations. We trust that by now they have been fully convinced and that their doubts have vanished. We congratulate *Dr. Priestley* on the completeness of his report.

BRONCHO-PNEUMONIA DUE TO THE BACILLUS OF FRIEDLÄNDER.

THE bacillus of Friedländer is one of the organisms which produce pneumomia, but since Fraenkel's discovery that the pneumococcus is the usual cause of pneumonia the former organism has received little attention *from* clinicians or pathologists. In the *Archives Générales de Médecine* of July 10th M. Lucien Rivet has reported the following interesting case. A man, aged 63 years, was admitted into hospital under *the* care of Dr. Chauffard on June 5th, 1905. He had been *suddenly* taken ill on June 1st with acute pain below the right breast, which was followed by a severe and prolonged rigor. *At* the same *time there* appeared a *dry* and "*tearing*" cough and high fever.

From the beginning there was bloody expectoration. On admission intense dyspnœa was present, the face was cyanosed, the respirations were 40 and shallow, the skin generally was bluish, and the eyes were bright and injected. The upper half of the right chest was absolutely dull, the vocal fremitus was abolished, and there was tubular breathing. In the axilla crepitant rales were heard. In the rest of the chest there were scattered sibilant râles. The sputum was very viscid and adherent and definitely bloody. The pulse was 130 and good. The urine was scanty and contained a little albumin. The temperature was 103·6° F. The sputum contained the pneumo-bacillus of Friedländer in pure culture. The bacillus was strongly coloured by methylene blue and did not retain Gram's stain. On the 7th the temperature was 103·1°, the pulse became thready and uncountable, and the patient died. The necropsy showed hepatisation of the upper lobe of the right lung, which was of a violaceous red colour, finely granular appearance, and friable. The middle lobe was in a state of atelectasis and the lower lobe appeared normal. In the upper lobe of the left lung there was one focus of hepatisation and in the lower lobe four foci. These foci were of the same appearance as the hepatised mass on the right side but much smaller, varying from the size of a walnut to that of a mandarin orange. The heart was fatty and there were some small calcareous patches on the aorta. The kidneys were much congested. The hepatised lung and spleen contained the bacillus of Friedländer in pure culture. Sections of the hepatised lung, both of the large mass in the right lung and the smaller foci in the left, showed the characteristic changes of pneumonia—fibrinous exudation containing desquamated epithelium and numerous leucocytes, particularly polynuclear ones. In places the blood-vessels were much dilated, forming veritable lakes of blood. In all the lesions were numerous bacilli of Friedländer. The liver was very fatty and slightly cirrhotic and showed some nodules containing the pneumo-bacillus. The cortex of the kidneys contained the bacillus both in an isolated form and in little colonies. The spleen also contained colonies and hæmorrhagic foci. M. Netter has pointed out the importance of the pneumo-bacillus in the production of broncho-pneumonia. Some writers insist on the extreme gravity of pneumonia and broncho-pneumonia when this organism is present. According to M. Netter the sputum is still more viscid than in ordinary pneumonia and in four out of five of his cases it was rusty, being greyish in the remaining one. In the present case it was more than rusty—it was distinctly hæmorrhagic. The pneumo-bacillus seems prone to produce hæmorrhagic lesions. Fatal cases of hæmorrhagic septicæmia due to it have been recorded and this disease has been produced in the rabbit by inoculation. It is noteworthy that the gravity of the case described above was not due merely to the pulmonary lesions but that there was a general infection with the pneumo-bacillus. Such a general infection is now well known to occur in the ordinary pneumonia due to the pneumococcus.

THE STERILISATION OF CATGUT BY MEANS OF BENZINE.

Dr. Kendirdjy has recorded in the *Répertoire de Pharmacie* of July 10th the results of an investigation of the various methods employed for the sterilisation of catgut, and he confirms the work of M. Beslier,[1] who found the vapour of benzine to give more satisfactory results than alcohol or acetone. Dr. Kendirdjy states, however, that one sterilisation is not sufficient, as he has obtained cultures of the bacillus subtilis from catgut which had been once sterilised with benzine. He thinks that the process should be repeated five times. His modification of the method consists in heating the catgut in the vapour of crystallisable benzine at a temperature of from 120° to 130° C. for one hour on five successive days. The vapour of benzine does not affect the solidity or the suppleness of the catgut and, when applied as directed, completely destroys the spores of the bacillus subtilis and all other micro organisms.

PROFESSOR Ivan Petrovitsch Pawlow, professor of physiology in the University of St. Petersburg, will open the winter session of the medical school at Charing Cross Hospital on Monday, Oct. 1st, and deliver the sixth biennial Huxley lecture "On Recent Advances in Science and their Bearing on Medicine and Surgery," at 4 P.M. Medical practitioners desiring to attend can obtain cards of admission on application to the Dean so far as the accommodation goes.

WE are informed that Dr. Frederick Taylor, the senior physician to Guy's Hospital, and Dr. E. G. Graham Little, physician for diseases of the skin at St. Mary's Hospital, are standing as candidates for the vacancy which has arisen, owing to the resignation of Dr. J. F. Payne, among the members of the Senate of the University of London representing convocation.

THE death of Dr. J. H. Bell of Bradford is announced at the age of 74 years. Dr. Bell was well known in the medical profession for his studies in the subject of anthrax. We hope to give an extended account of his career in a future issue.

THE session at St. Thomas's Hospital will commence on Oct. 3rd, and the Old Students' dinner will be held at the Hotel Cecil on the previous evening at 7 for 7.30 P.M., when Dr. Arthur Newsholme will preside.

A TELEGRAM from the Acting Governor of the Mauritius received at the Colonial Office on Sept. 7th states that during the fortnight ended on Sept. 6th there were 13 cases of plague, all of which proved fatal.

MEAT INSPECTION IN BELFAST.

THE honorary secretary of the Belfast Provision Curers' Association has issued and sent to the members of the Belfast corporation an important document on the question of meat inspection, especially in reference to pork. He points out that he knows of no evidence based on statistics taken in Ireland which would support the theory put forward by the 1898 Royal Commission on Tuberculosis (Sir Herbert Maxwell's Commission), in which it is stated that "in view of the greater tendency to generalisation of tuberculosis in the pig, we consider that the presence of tubercular deposit in any degree should involve seizure of the whole carcass and the organs." This has not been verified by actual inspection of swine in the North of Ireland, and the experience of the local provision trade is entirely against it. It is noteworthy that while pig-raising is a most important industry in Ireland, yet when it comes to the selection of a Royal Commission to devise practical measures for the control of tuberculosis in the meat-supply not a single representative from Ireland is appointed, nor, indeed, anyone with any practical acquaintance with the provision curing trade. It is a pity that this was so, as the omission has evidently left a feeling of soreness. The report of the secretary of the Belfast Provision Curers' Association goes on to point out that it is very remarkable that the Royal Commission made a distinction between tuberculous pigs and tuberculous cattle, recommending that in the case of cattle the carcass, if otherwise healthy, should not be "condemned" but only such part of it as contained tuberculous lesions, and only in case of advanced tuberculosis was the entire carcass of cattle to be destroyed. This distinction, the association affirms, is not recognised in the practice of other countries, pigs and cattle being treated alike.

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[1] See THE LANCET, Sept. 15th, 1906, p. [illegible]

The report urges that much has been learned with regard to tuberculosis since 1898, the date of Sir Herbert Maxwell's Commission. A Committee of the House of Commons took evidence in connexion with the Tuberculosis (Animals) Compensation Bill (1904), and of all the witnesses who gave evidence in 1904 not one supported the recommendations of the Maxwell Commission as regards pigs. Professor Matthew Hay of Aberdeen stated that only two pigs out of 2000 slaughtered in the previous year in that city were condemned. It is obvious that Aberdeen, in the case of the pig, does not follow the recommendation of the Royal Commission. Before the same Committee Dr. R S. Marsden of Birkenhead, in reply to the question "Do you as a scientific man say that an animal with even the smallest amount of tubercle can be fit for human food or as fit as an animal that has not tuberculosis at all?" answered: "Yes, I think so. I think to some extent there was exaggeration in the minds of some of us when we originally began. I think if the dangers were as great as at first supposed there would have been far greater evils than have occurred. Therefore, I do not think it right to condemn on the merest speck of tubercle a whole carcass. I think it a matter in which a man must use common sense as well as scientific knowledge, and I lay great stress on common sense." Mr. J. King, veterinary inspector for the Corporation of London, stated "as his own personal view, with his experience of many years, that Sir Herbert Maxwell's Commission was too hard upon the pig." "Pigs," he added, "ought to be dealt with in the same way as cattle—that is to say, that tuberculosis should be treated as a localised disease." The superintendent of the Birmingham corporation markets (Mr. F. H. Edwards) stated that in Birmingham out of 175,000 pigs slaughtered the number of condemnations was 291. The Birmingham authorities did not follow, he said, the recommendations of the Royal Commission (Sir Herbert Maxwell's) in the case of pigs. "We do not," he said, "condemn the whole carcass where it is a mere local affection with regard to pigs." The chairman of the health committee of the corporation of Glasgow, Baillie Anderson, J.P., submitted statistics to show that during 1905 53,483 swine were slaughtered in Glasgow. Of these 2132 were found to be affected with tuberculosis, 152 were subsequently passed, 75 were totally destroyed, while 1905 pigs were partially destroyed (heads only), the remainder of the carcass being handed back to the owner. Under the Belfast system of inspection, where there is no classification as to the degree of tuberculosis, instead of 75 pigs being totally destroyed, as in Glasgow, there would have been 2132. Baillie Anderson informed the committee that the Glasgow inspection "was not quite so stringent as the Commission on Tuberculosis recommended in the case of pigs." All this evidence, which has accumulated since Sir Herbert Maxwell's Commission sat, ought, the Belfast Provision Curers' Association thinks, to receive proper attention.

The secretary of the association next submits an actual test carried out on four pigs bought in Cookstown market on July 7th, 1906, and condemned by the inspector of the Belfast corporation to total destruction as being unfit for food. These were carefully examined by Professor W. St. Clair Symmers of Queen's College, Belfast. Three of the animals showed tuberculous changes in certain of the neck glands and the fourth did not contain any tuberculous glands at the time he saw it. Neither by the naked eye nor microscopically could Professor Symmers detect evidence of tuberculosis in the flesh of these animals, nor in the juices obtained from the flesh by the most rigorous method known to bacteriologists. He says in his report: "I conclude that the flesh of these four animals was free from tuberculous germs, that the tubercle was limited to the neck glands, and that the destruction of the non-tuberculous portions of the carcass was unnecessary. I may add that proper cooking will easily destroy any tuberculous germs if such should happen to be present, but in the flesh (as distinct from the glands) of the four pigs here in question there were no tubercles to be destroyed."

Reference in the report is then made to the measures adopted in Germany to protect the meat-supply and Professor Ostertag, of the Veterinary High School at Berlin, is quoted as stating in his "Handbook of Meat Inspection" that "at present the view is generally entertained that in undoubted cases of local tuberculosis the meat is harmless, while in generalised cases it is harmful," and that "the assumption of the harmlessness of meat in cases of undoubted local tuberculosis will probably remain for all time as an immutable dogma of meat inspection." This is the view which the Belfast Provision Curers' Association ask, the Belfast corporation to adopt, in line with the practice of the great English cities mentioned and with Germany itself, where the most severe restrictions are in force in order to protect a population that eats uncooked meat. Professor MacFadyean is quoted as saying before the Royal Commission of 1896: "I feel quite satisfied that if tuberculosis were absolutely eradicated from the cattle of this country it could not sensibly affect the percentage of tuberculosis among human beings." And, again: "I doubt whether there are ten people in this country in the year who contract tuberculosis through meat; I think even one might doubt whether there is one." Again, Sir Charles Cameron stated before the same Royal Commissioners: "If I were put into the witness-box I would not be able to swear I ever knew anyone who got tuberculosis from either meat or milk, and there are few people who could do so." In Prussia during 1902 (latest statistics available) there were slaughtered 3,909,778 pigs; of these 103,192 were found to be tuberculous but only 4604 were condemned to total destruction. The carcases of 93,825 were allowed to be sold after removal of affected organs and tissues. Under our Belfast system the whole 103,192 carcasses would have been totally destroyed. If the farmers and pig feeders of Prussia alone had been subject to the meat inspection rules of Belfast their loss from pork destroyed, calculated at present prices, would have been £380,000 to £400,000 per annum over and above what their highly-trained inspectors actually found necessary to condemn, though taking measures to protect the food-supply of a people accustomed to eat pork in large quantities absolutely uncooked. Why in Belfast, where the population uniformly cook their ham and bacon, should precautions be used to a degree beyond anything conceived in Germany?

An extract from the regulations governing the meat inspection of the United States Department of Agriculture, dated June 30th, 1906, is published as an appendix to the pamphlet. It runs as follows:—

Tuberculosis.—All carcasses affected with tuberculosis and showing emaciation shall be condemned. All other carcasses affected with tuberculosis shall be condemned, except those in which the lesions are slight, calcified, or encapsulated, and are confined to the tissues indicated in any one of the following five paragraphs, or to a less number of such tissues and excepting also those which may under Paragraphs (6) and (7) below, be rendered into lard or tallow. 1. The cervical lymphatic glands and two groups of visceral lymphatic glands in a single body cavity, such as the cervical, bronchial, and mediastinal glands or the cervical, hepatic, and mesenteric glands. 2. The cervical lymphatic glands and one group of visceral lymphatic glands and one organ in a single body cavity, such as the cervical and bronchial glands and the lungs, or the cervical and hepatic glands and the liver. 3. Two groups of visceral lymphatic glands and one organ in a single body cavity, such as the bronchial and mediastinal glands and the lungs, or the hepatic and mesenteric glands and the liver. 4. The cervical lymphatic glands and one group of visceral lymphatic glands in each body cavity, such as the cervical, bronchial, and hepatic glands. 5. Two groups of visceral lymphatic glands in the thoracic cavity, and one group in the abdominal cavity, or one group of visceral lymphatic glands in the thoracic cavity and two groups in the abdominal cavity, such as the bronchial, mediastinal, and hepatic glands, or the bronchial, hepatic, and mesenteric glands. 6. Carcasses affected with tuberculosis in which the lesions of the disease are located, as described in any one of the preceding five paragraphs, but are slight and in a state of caseation or liquefaction necrosis, or surrounded by hyperæmic zones, and also those in which slight, calcified, or encapsulated lesions are found in more visceral organs or more groups of visceral lymphatic glands than are specified in any one of the preceding five paragraphs, may be rendered into lard or tallow, after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220° F. for not less than four hours. 7. Carcasses in which the cervical lymphatic glands, one organ, and the serous membrane in a single body cavity, such as the cervical lymphatic glands, the lungs, and the pleura or the cervical lymphatic glands, the liver, and the peritoneum, are affected with tuberculosis may be rendered into lard or tallow, after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220° F. for not less than four hours. 8. All condemned carcasses, parts of carcasses, or organs showing lesions of tuberculosis shall be deposited in receptacles provided for that purpose and shall either be tanked at once or be locked in the "condemned" room until such time as an employee of the department can see that they are placed in the tank. 9. All heads and other parts showing lesions of tuberculosis shall be condemned.

The secretary of the Belfast Provision Curers' Association certainly makes out a strong case for asking that the meat regulations of Belfast shall be in conformity with the requirements dictated by scientific authority and prevalent elsewhere.

ON Sept. 1st Dr. T. H. S. Pullin completed 50 years' service as medical officer of the Sidmouth district of the Honiton (Devon) union.

MEDICINE AND THE LAW.

Are Honorary Medical Officers Entitled to Fees for Giving Evidence?

Is an honorary medical officer to a public hospital who has attended upon a deceased person entitled to a fee for attending an inquest touching the death of such deceased person or for making a post-mortem examination made at the request of the coroner? The matter is regulated to a great extent by Section 22 of the Coroners Act, 1887. That section prescribes the fees that are to be paid to medical witnesses. It enacts as follows:—"A legally qualified medical practitioner who has attended at a coroner's inquest in obedience to a summons of the coroner under this Act shall be entitled to receive such remuneration as follows; that is to say, (*a*) for attending to give evidence at any inquest whereat no post-mortem examination has been made by such practitioner, one guinea; and (*b*) for making a post-mortem examination of the body of the deceased, with or without an analysis of the contents of the stomach or intestines, and for attending to give evidence thereon, two guineas. Provided that—(1) any fee or remuneration shall not be paid to a medical practitioner for the performance of a post-mortem examination instituted without the previous direction of the coroner; (2) where an inquest is held on the body of a person who has died in a county or other lunatic asylum or in a public hospital, infirmary, or other medical institution, or in a building or place belonging thereto or used for the reception of the patients thereof, whether the same be supported by endowments or by voluntary subscriptions, the medical officer whose duty it may have been to attend the deceased person as a medical officer of such institution as aforesaid shall not be entitled to such fee or remuneration." This section does not define very clearly the institutions to which it is intended to apply. It has been held by a county-court judge that the sick wards of a workhouse are within the terms of the enactment, but among other institutions such as prisons, military hospitals, public schools, training colleges, almshouses and asylums for the aged, dispensaries, cottage hospitals, and nurses' homes, doubts may well arise as to whether the medical officer is entitled to claim any fees. In the not infrequent case of an accident happening in the street and death resulting before the body reaches the public hospital to which it is being carried, the medical officer of the hospital may be summoned under Section 21, Subsection (1) as an expert to give his opinion as to the cause of death, and in such case he would be entitled to the usual fee. Section 23 enacts that "where a medical practitioner fails to obey a summons of a coroner issued in pursuance of this Act, he shall, unless he shows a good and sufficient cause for not having obeyed the same, be liable on summary conviction on the prosecution of the coroner or of any two of the jury to a fine not exceeding £5." It does not appear whether this section is intended to be in addition to, or in substitution for, the powers conferred by Section 19. It would seem that the provisions of Section 19 are wide enough to cover medical practitioners; and, if so, the trouble and inconvenience of instituting a prosecution in which the decision as to the necessity of summoning the medical practitioner would rest with the justices instead of with the coroner would practically make this section a dead-letter. Subsection 2 of Section 19 of the Coroners Act enacts that "when a person duly summoned to give evidence at an inquest does not, after being openly called three times, appear to such summons, or appearing, refuses without lawful excuse to answer a question put to him, the coroner may impose on such person a fine not exceeding 40*s*." Subsection 3: "Any power by this Act vested in a coroner of imposing a fine on a juror or witness shall be deemed to be in addition to and not in derogation of any power the coroner may possess independently of this Act for compelling any person to appear and give evidence before him on any inquest or other proceeding, or for punishing any person for contempt of court in not so appearing and giving evidence, with this qualification, that a person shall not be fined by the coroner under this Act and also be punished under the powers of a coroner independently of this Act." The coroner has power to compel the attendance of a witness by summons and in case of disobedience to issue a warrant to cause him to be apprehended and brought into court, but it does not appear that there is any means provided for executing such a warrant outside the coroner's jurisdiction. In Horner *v.* Lewis (62 J.P. 345) the appellant's claim was for 2 guineas, fees alleged to be due to him under the Coroners Act, 1887, Section 22, for making a post-mortem examination by order of the respondent, the coroner for the county. The facts were as follows. The appellant was honorary medical officer to the Wanstead Children's and General Hospital and received no remuneration for attending the patients therein by way of fees, honorarium, or otherwise. He attended on the deceased child while a patient in the hospital and by order of the respondent, the coroner, made a post-mortem examination and attended the inquest under a subpœna and gave evidence as to the condition of the child when she was taken into the hospital and as to the cause of death as ascertained by means of the post-mortem examination. He applied for the fees due to him for such attendance and making the examination, but the coroner refused to pay, alleging that by the Coroners Act, 1887, Section 22, Subsections 1 and 2, the appellant was not entitled to such fees. The action was a friendly one and was brought to obtain a decision on the question in order that if the fees were payable the coroner might obtain payment from the county council. The county-court judge decided against the appellant's claim. The appeal came before Mr. Justice Wills and Mr. Justice Kennedy, sitting as a Divisional Court. Mr. Justice Wills in the course of his judgment said: "The question here is not whether one likes or dislikes the effect of the Act of Parliament which we have to interpret. I may sympathise with medical men who are made to perform duties without receiving payment for them but that cannot affect my decision. The simple point is whether this particular case falls within the Act of Parliament. It is impossible to say that this institution is not a public hospital. I shall not attempt any definition of what is a public hospital, but I think it is easy to say whether a case is one side of the line or not. In connexion with this hospital there is a published list of governors and subscribers; there are the names of a medical staff, annual meetings are held, patients are admitted by governors' letters, and all the other elements are present which are found in any of the great London hospitals, which no one would deny are undoubtedly public. Then, it is argued that the patients of this hospital are restricted to the inhabitants of a certain area and to people who can get letters from governors, but these are circumstances which are found in many great hospitals which are undoubtedly public. The next question we have to consider is whether the appellant is 'the medical officer of such institution whose duty it was to have attended on the deceased as a medical officer of such institution.' It is said that he is not because he is not paid for any of his services and that the word 'duty' can only mean that he is legally bound to attend the patients. I think it does not mean only paid duty, but that it refers to a medical officer who is within his function in attending on a patient in the institution. The appellant figures in the published list of medical officers. It is not at all unusual to find unpaid officers in London hospitals, because gentlemen perform such services gratuitously for the sake of advantages which may accrue to them in the way of experience or otherwise. It is argued that even if the appellant was the medical officer there was no 'duty' on him to attend the deceased. It is clearly his duty, though it was true it was a duty of imperfect obligation. That duty brought him within the section, and the case therefore falls under the proviso of the Act of Parliament." Therefore, so long as this decision stands honorary medical officers who may have attended a patient in a hospital or made a post-mortem examination on the direction of the coroner, are bound to attend his court and to give their evidence without fee or reward. We are strongly of opinion, however, that the law should be altered.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8350 births and 6754 deaths were registered during the week ending Sept. 8th. The annual rate of mortality in these towns, which had been equal to 18·4 and 18·3 per 1000 in the two preceding weeks rose last week to 22·3, a considerably higher rate than had prevailed in any previous week of this year.

During the first ten weeks of the current quarter the death-rate in these towns averaged 15 3 per 1000, the rate during the same period in London being 15·0 The lowest death-rates in the 76 towns during the week were 8 4 in Hornsey, 10·8 in King's Norton, 12·8 in West Hartlepool, and 13·1 in South Shields; the rates in the other towns ranged upwards to 31·4 in Hanley, 31 5 in St. Helens, 32·0 in Merthyr Tydfil, 32 8 in Coventry, and 33·8 in Grimsby. The 6754 deaths in the 76 towns showed an increase of 198 upon the number returned in the previous week, and included no fewer than 2571 which were referred to the principal epidemic diseases, against numbers increasing from 362 to 1978 in the eight preceding weeks; of these, so many as 2342 resulted from diarrhœa, while 65 were referred to measles, 60 to whooping cough, 42 to diphtheria, 37 to "fever" (principally enteric), 24 to scarlet fever, and one to small-pox. The deaths from these epidemic diseases were equal to an annual rate of 8 5 per 1000 in the 76 towns and to 6·4 in London. These epidemic diseases caused no death in Hornsey and the annual rate therefrom did not exceed 1·0 in Halifax and 1·4 in King's Norton; whereas it ranged upwards to 16·7 in Stockport, 17 4 in Bootle, 18·1 in Hanley, and 23·2 in Coventry. The deaths referred to diarrhœa (mainly of infants under one year), which had steadily increased in the 13 preceding weeks from 50 to 1765, further rose during the week under notice to 2342; the highest annual rates from this disease during the week were 15 0 in Bootle, 16·1 in Preston, 17·3 in Hanley, and 22 5 in Coventry. The largest proportional mortality from measles occurred in Huddersfield, Bury, Stockport, and Rotherham; from whooping cough in Swansea and Middlesbrough; and from diphtheria in Aston Manor and Smethwick. Six deaths were referred to "fever" in Hull, three in Leeds, and two each in Liverpool, Bristol, and Aston Manor. Scarlet fever caused two deaths in East Ham, Birkenhead, Salford, and Sheffield. The fatal case of small-pox occurred in Devonport. No case of small-pox was under treatment in the Metropolitan Asylums hospitals during the week, no new case having been admitted thereto since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever Hospital, which had been 3078 and 3042 at the end of the two preceding weeks, rose again to 3067 during the week under notice; 415 new cases were admitted to these hospitals during the week, against 350, and 317 in the two preceding weeks The deaths referred to pneumonia and other diseases of the respiratory organs in London, which had been 103 and 109 in the two previous weeks, further rose last week to 143, and exceeded by 13 the corrected average in the corresponding week of the four preceding years, 1902–05 The causes of 42, or 0·6 per cent., of the deaths registered in the 76 towns during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Manchester, Leeds, Salford, Bristol, Hull, and in 48 smaller towns; the proportion of uncertified causes showed, however, a considerable excess in Reading, Wigan, Bolton, Rochdale, and Bradford.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 13·8 and 14·2 per 1000 in the two preceding weeks, further rose to 15 8 in the week ending Sept. 8th but was no less than 6 7 below the mean rate in the same week in the 76 English towns. The rates in the eight Scotch towns ranged from 9 0 and 12·6 in Paisley and Leith to 17·1 in Dundee and in Aberdeen and 19·2 in Greenock. The 533 deaths in the eight towns showed a further increase of 46 upon the numbers returned in the two previous weeks, and included 85 which were referred to the principal epidemic diseases, against 79 and 80 in the two preceding weeks. These 85 deaths were equal to an annual rate of 2·5 per 1000, which was no less than 6 0 below the rate from the same diseases in the 76 English towns Of these 85 deaths, 62 resulted from diarrhœa, eight from "fever," seven from whooping-cough, four from scarlet fever, two from measles, two from diphtheria, and not one from small-pox. The deaths referred to diarrhœa in the Scotch towns, which had been 54 and 48 in the two previous weeks, rose last week to 62, and exceeded the number in any previous week of this year; they included 31 in Glasgow, 10 in Dundee, nine in Edinburgh, six in Greenock, and four in Aberdeen. Seven of the eight deaths referred to "fever" were returned in Glasgow and included three certified as cerebro-spinal meningitis. The two fatal cases of measles, three of the four of scarlet fever, as well as five of the seven deaths from whooping-cough, were also returned in Glasgow. Diphtheria caused one death both in Dundee and Aberdeen. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 52 and 61 in the two preceding weeks, declined again to 50 in the week under notice, and were 10 below the number returned in the corresponding week of last year. The causes of 11, or 2·1 per cent., of the deaths registered during the week were not certified; the mean proportion of uncertified deaths in the 76 English towns did not exceed 0 6 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had steadily increased from 16 8 to 21·9 per 1000 in the five preceding weeks, further rose to 24·1 during the week ending Sept. 8th. During the first ten weeks of the current quarter the death-rate in the city averaged 19·8 per 1000 the mean death rate during the same period being only 15 0 in London and 12·3 in Edinburgh. The 175 deaths of Dublin residents during the week under notice showed a further increase of 16 upon the numbers returned in the five preceding weeks, and included 52 which were referred to the principal epidemic diseases, against 27 and 28 in the two previous weeks; these 52 deaths were equal to an annual rate of 7·2 per 1000, the death-rate during the week from the same diseases being 6·4 in London and only 1·8 in Edinburgh. Of these 52 deaths no fewer than 49 were referred to diarrhœa (against 27 in each of the two preceding weeks), two to "fever," one to whooping-cough, and not one either to small-pox, measles, scarlet fever, or diphtheria. The deaths of infants showed a marked increase on the numbers returned in recent weeks, while those of elderly persons had declined. Nine inquest cases and five deaths from violence were registered; and 54, or 30·9 per cent, of the deaths occurred in public institutions. The causes of all but one of the deaths registered during the week were duly certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: G. T. Broatch to the *President*, for three months' course at West London Hospital; J. H. Beattie to the *Dryad*, for Navigation Schools; W. Bowden, D.S.O., to the *Formidable* on recommissioning; A. MacLean to the *Ganges* for *Ganges II.*; E. R Dimsey, D.S.O., to Cape Hospital; J. H Whelan to the *Vernon*; and G. Hewlett to the *Barfleur*. Staff Surgeon H. J. Chater to the *President*, additional, for three months' course at West London Hospital. Surgeons: F. R. Mann to the *President*, for three months' course at Middlesex Hospital; E T. Burton to the *Victory*; A. K. Smith Shand to the *Formidable*, on recommissioning; and J. Thornhill to Royal Marines at Portsmouth.

In accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Surgeon M. Breton has been placed on the Retired List. Fleet Surgeon F. W. Stericker has been placed on the Retired List at his own request.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Colonel Richard W. Ford, D.S.O., from the Seconded List, to be Lieutenant-Colonel (dated August 17th, 1906). Lieutenant-Colonel Reginald J. C. Cottell is seconded whilst holding the appointment of Deputy Surgeon, Royal Hospital, Chelsea (dated August 17th, 1906). Captain Thomas J. Crean, V C., retires, receiving a gratuity (dated Sept. 8th, 1906). Lieutenant John H. Spencer is seconded under the provisions of Article 349, Royal Warrant, March 19th, 1906 (dated July 31st, 1906). Lieutenant-Colonel Richard F. O'Brien retires on retired pay (dated Sept. 12th, 1906). Lieutenant-Colonel G. G. Adams has been appointed Medical Inspector of Recruits in the Southern Command. Lieutenant-Colonel H. G Hathaway, who was dangerously wounded at Diamond Hill, South Africa, on June 11th, 1900, has been awarded a permanent wound pension.

The medical officers at the Aldershot Army Corps manœuvres on the South Downs are as follows:—Army Corps Staff: Principal medical officer, Surgeon-General Sir Thomas Gallwey, A.M.S.; staff officer to the principal medical officer, Lieutenant-Colonel T. W. O'H. Hamilton, C.M.G. The principal medical officers of the First, Second, and Third Divisions of the Blue Force are respectively Lieutenant-Colonel H. N. Thompson, D.S.O., Major H. I. Pocock, and Major Frederick Smith, D.S.O.

Army Medical Reserve of Officers.

Surgeon-Lieutenant-Colonel John H. Maclean having resigned his commission in the Volunteers, ceases to belong to the Army Medical Reserve of Officers.

Volunteer Corps.

Royal Garrison Artillery (Volunteers): 2nd Middlesex: Surgeon-Captain A. B. Lyon to be Surgeon-Major (dated August 20th, 1906). 2nd Middlesex: Surgeon-Lieutenant-Colonel (Honorary Captain in the Army) A. Thorne is granted the honorary rank of Surgeon-Colonel (dated August 27th, 1906).

Rifle: 1st Volunteer Battalion the Prince Albert's (Somersetshire Light Infantry): Surgeon-Captain J. M. Harper to be Surgeon-Major (dated August 1st, 1902).

Deaths in the Services.

Deputy Inspector-General of Hospitals and Fleets Richard Dormer White on August 26th at Victoria Hospital, Folkestone, aged 61 years. He graduated as M.B. at the University of Dublin in 1871 and proceeded to the degree of M.D. in 1881. He entered the navy as surgeon in April, 1873, being promoted staff surgeon in April, 1885, and fleet-surgeon in October, 1893, retiring with the honorary rank of deputy inspector-general of hospitals and fleets in August, 1902. He was fleet surgeon of the *Raleigh* and served in the Naval Brigade landed from that vessel and others at Bathurst, on the River Gambia, West Coast of Africa, in February, 1894, for the punishment of a rebellious slave-raider chief. For his services with this expedition, in which he was slightly wounded, he was mentioned in despatches, was nominated for the C.B., and received the medal with Gambia, 1904, clasp. He received the thanks of the Admiralty for services in the *Cambridge* in 1873 and the thanks of the Medical Director-General for the journal of the *Bullfrog* when serving on the West Coast of Africa in 1884–85. He also served with Lord Sackville in exploring the water-sheds of the river Pilcomayo on the borders of Bolivia and Paraguay in South America.

Brigade-Surgeon Charles Frederick Richards on August 30th at Rathturret, Warrenpoint, county Down, aged 67 years. He graduated as M.B. at the University of Dublin in 1865 and entered the army as an assistant surgeon in October, 1866, being promoted surgeon in March, 1873, and surgeon-major in January, 1879, retiring with the honorary rank of brigade-surgeon in August, 1888.

The "Spectator" Experimental Company.

We cordially congratulate the *Spectator* on its Experimental Company and on the result it has achieved in showing that young men can be sufficiently drilled and trained in the course of six months to become efficient soldiers. Nor must it be forgotten that in point of health, physique, intelligence, and alertness of mind the men are not what they were when they first joined the company to undergo a voluntary course of military training; they are all round better. This country will always *need* to have a regular army of highly trained and disciplined troops, and a perfect soldier cannot be turned out with the accumulated experience of a veteran in the course of six months; but the elements of military training *can* be acquired in the brief time named, and once acquired will not be forgotten. It now remains to be ascertained what is the minimum of periodical training practically required to maintain what has been gained.

Soldiers' Foul Water bottles.

It is notified in the Northern Command that water-bottles in such a state as to be liable to cause sickness have been found in possession of regulars, militia, yeomanry, and volunteers. Commanding officers are ordered to have all water-bottles thoroughly cleansed by scalding with boiling water, also all water carts and bottles in the Army Ordinance Department charge are to be disinfected.

Lord Kitchener has instituted a system of lectures on sanitation, to be delivered during the cold season in every military station in India by specially selected medical officers.

Correspondence.

"Audi alteram partem."

OPERATIVE TREATMENT IN CERTAIN CASES OF INSANITY.

To the Editors of THE LANCET.

SIRS,—Your correspondent, "M.R.C.S.," does well to raise the question of operative interference in one of his cases which apparently has resisted other means of treatment. I have for some years maintained the advantage of early surgical interference to relieve pressure and the necessary consequence of it—viz., wasting of the cells and disturbance of the circulation. I have also recorded cases where relief has followed operation and I have indicated in papers read before the Medico-Psychological Society, the forms of central disease in which surgical measures are to be recommended. My experience has been limited to the removal of bone but I can well understand that direct diminution of the blood-supply by ligature of a vessel is worthy of consideration. The risk of tying the carotid artery is that the sudden arrest of such a large supply of blood to one side of the brain may cause paralysis from softening and that if the patient is troublesome the after-treatment might be attended with difficulties. I have in some cases employed venesection with advantage and though the patients have occasionally tried to interfere with the bandages the difficulty has been overcome by constant supervision until the wound healed, but the possibility of difficulty in this direction should be carefully estimated before interfering with such a large vessel as the carotid artery. So much depends upon the acuteness of the symptoms that it is not necessary to do more than call attention to what may prove to be a dangerous element in considering the propriety of operation.

In the hands of a capable surgeon the operation of trephining to relieve pressure and cerebral congestion is a safe one and in my experience unattended with dangerous or troublesome consequences, and in addition it gives an opportunity of seeing the actual condition of the brain tissue and the membranes, so that an opinion on the prognosis of the case is rendered more reliable, while if desired a drainage of fluid from the congested area can be maintained before the wound is actually closed. It has always seemed to me that the hæmorrhage from the scalp wound in making the primary incision has been very favourable to the object in view, which is to relieve pressure and to prevent permanent destruction of tissue. Operative cranial surgery is, in my opinion, not only justifiable but in well-chosen cases is the only means of scientific treatment, and there is every reason to believe that the early adoption of it would have cured many people who have for want of it proceeded to incurable dementia. The purely medical treatment of insanity has had a long trial and has met with only a partial success. The modern advances in physiology and surgery may well lead us to hope that what has been accomplished with such marked success in the abdomen may be extended to the skull and its contents, for it appears every day to be more certain that in this direction is to be found the remedy for many persons who must otherwise endure the misery of a chronic and hopeless destructive process.

I am, Sirs, yours faithfully,
T. CLAYE SHAW, M.D. Lond., F.R.C.P. Lond.
Harley-street, W., *Sept. 8th, 1906.*

To the Editors of THE LANCET.

SIRS,—The question put by "M.R.C.S., &c." in THE LANCET of Sept. 8th, p. 682, admits of a precise and unhesitating answer. Ligature of the carotid, for the cure or alleviation of mania, would certainly not be justifiable. If it were certain that the mania was not only accompanied, but caused, by hyperæmia of brain, it would still not be justifiable, for the hyperæmia might be of a passive nature which would require not a less vigorous, but a more vigorous *vis a tergo* for its relief; but there is no evidence at all that mania is caused, or even accompanied, by hyperæmia of the brain, and what evidence we have is rather the other way. In cases in which great hyperæmia of the brain is found post mortem, the ante-mortem symptoms are those not of mania, but of coma, and the brains of those who die in acute mania are not often found deeply congested. That anæmia of the brain necessarily follows a diminished supply of blood to the organ, is not quite accurate, for the diminished supply may be more than counterbalanced by a still more diminished efflux; and it is certain that symptoms of mental depression, if by this is meant depression of spirits, or melancholy, do not necessarily follow a diminution in the blood-supply to the brain, for melancholy does not necessarily, nor even usually, follow severe hæmorrhage; nor is it a usual concomitant of general anæmia. "M.R C.S." says that many cases of simple insanity appear to depend almost entirely upon active hyperæmia and increased blood pressure. I usually test by routine the blood pressure of my patients by the sphygmo-hæmometer, and I find that a high blood pressure goes more often with depression of spirits and tranquillity than with excitement; and I would point out that a high pressure of blood in the arteries does not necessarily imply hyperæmia in the tissues, or a more rapid flow of blood through the capillaries. The high pressure may be compensatory, and complementary to some obstruction to the flow of the blood through the small vessels, so that the net result may be a circulation that is not increased, or is even diminished in velocity.

Increased blood pressure may, as "M.R C.S." asserts, be the main cause of the delirium of persons suffering from pyrexia, and of the mental excitement produced by stimulants, and by the administration of ether and chloroform. I know of no series of measurements of blood pressure in these states to give countenance to the assertion that increased blood pressure is present in them; and if it were proved to be uniformly present, proof would still be wanting that the high blood pressure was the cause of the delirium and excitement. To perform on such grounds as this a capital operation, with risk, not only of life, but of permanent damage to brain, even if life is not lost, would be in my opinion unwarrantable. One other statement, made by "M.R.C.S.," as if it were established fact, seems to me open to question. "In cases of mania," he says, "the more acute the symptoms the greater the cerebral disturbance and insomnia, the more favourable is the prognosis." This is not my experience. I am accustomed to teach that the gravity of an attack of acute insanity, by which I mean the danger to life in the first place, and of permanent alienation of mind in the second, is a product of two factors, viz:—the intensity of the attack, and its duration. If by acuteness of symptoms "M.R.C.S." means brevity of the acute attack, I should agree with him; but if, as appears from his context, he means intensity or severity of the attack, then his experience is the reverse of mine.

I am, Sirs, yours faithfully,
CHAS. MERCIER.
Wimpole-street, W., Sept. 8th.

ANÆSTHESIA IN DENTAL SURGERY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Sept. 8th I notice a review of the second edition of my little book on the above subject, and while thanking your reviewer for the kind things he has said in regard to it I have pleasure in acceding to his request (or is it a challenge?) and referring him to proof, as far as possible, of the statement made on p. 193 that arrest of the respiration may be due, among other things, to "direct retardation and arrest of the pulmonary circulation, first in the capillaries and then in the larger vessels, due to the local direct action of chloroform."

If your reviewer can get hold of a copy of the "Report of the Discussion on Anæsthetics" of the Glasgow Medico-Chirurgical Society (1891), published by Alex. Macdougall, 81, Buchanan-street, Glasgow, he will find on p. 5 that the late Professor Coats, whose views on the physiological action of chloroform were, I believe, particularly sound, draws attention to this cause of respiratory arrest, basing his remarks on Dr. D. Newman's work when a member of the Glasgow Committee on Anæsthetics. Whether any later observer has confirmed this I am unable to say, but all I wish to contend is that I am not speaking without authority to support me. I have avoided bibliographical references in this book, as I am inclined to think by the average reader they are regarded as a nuisance.

In another journal my remarks on the question of the administration of anæsthetics by a Licentiate in Dental Surgery were dealt with more severely than by your reviewer, the writer evidently regarding me as eminently unsound in this respect. To many London anæsthetists it appears nothing short of heretical to suggest that anæsthetics may be given properly by anyone other than an anæsthetist or "fully qualified medical man." It is, however, perfectly useless to lay down that every man who administers nitrous oxide must be medically qualified. In certain classes of practice it is next to impossible. I live in a country where dentists, until quite recently at all events, even gave chloroform to patients without calling in a medical man. This is, of course, unspeakable and personally I regard the casual administration of ethyl chloride by dentists as only less objectionable. At the same time I would much prefer that patients be given nitrous oxide or mixtures of it with ethyl chloride or ether by a properly trained L.D.S., of whom there are now many about, to their being *chloroformed* by one of my brother M.B.'s. To only too many such anæsthesia still means *chloroform*. I am, Sirs, yours faithfully,

T. D. LUKE.
Edinburgh, Sept. 10th.

HÆMATOGENOUS ALBUMINURIA.

To the Editors of THE LANCET.

SIRS,—I have met with three cases of albuminuria in youths of 17 to 20 years during the last few weeks. The administration of from 60 to 80 grains of calcium lactate has completely cleared this up, in one case in a few hours. The other two cases were not examined until an interval of 24 hours had elapsed. I find that a smaller dose than 60 grains is not so definite in its action. Accordingly I can vouch for the value of the work Sir A. E. Wright has performed in solving this often most perplexing problem of functional albuminuria which must have frequently completely changed, if not ruined, the prospects of many a perfectly healthy boy.

I am, Sirs, yours faithfully,
CHARLES B. PENNY.
Walbrook, E.C., Sept. 7th, 1906.

WHAT IS A SPECIALIST?

To the Editors of THE LANCET.

SIRS,—Your correspondents who are writing letters under this title do not appear to be confining themselves very strictly to supplying material for answering the question. It is not the definition of a specialist which concerns most of them; rather they are concerned to speculate how far material success is achieved by the practice of specialism, and how far the chances of such success are denied unfairly to many members of the medical profession.

Has your attention been called to a contribution by Dr. Herbert Snow in a monthly journal called the *Grand Magazine?* The paper, which I have reason to believe has disturbed the equanimity of some members of the medical profession, appears to be one of a series on "The Secret of Success," and as the seventh in succession of this series it deals with "Success in Medicine," and purports to be a feast of thought furnished by several contributors, voluntary or involuntary. The names of Sir Dyce Duckworth, Dr. Whipham, Dr. F. W. Andrewes (misspelt), Dr. Wethered, Dr. Herbert Snow, Professor Clifford Allbutt, Mr. Ernest Kingscote, M.B., Miss Aldrich Blake, M.D., Mr. Litton Forbes, Sir James Crichton Browne, and Mr. Brudenell Carter, all appear at the heads of successive paragraphs or pages, and these names are reinforced by anonymity in the shape of "An Eminent London Physician who has received a Baronetcy," and of "Sir X. Z., a well-known London specialist." In the case of several of the gentlemen mentioned it is obvious that their contributions have been involuntary, inasmuch as they consist only of extracts from their published works, but some appear to have written in reply to direct applications from the magazine. Among these, from internal evidence only, I should be inclined to place Dr. Herbert Snow, who may at least claim the merit of having escaped from conventionality. He *tells the public* that the main elements making for success in the medical profession, ranged in the order of their importance, are unscrupulousness, selfishness, hypocrisy, industry, and ability; that no one with the merest vestige of a conscience should attempt to become a medical practitioner; that everything in the nature of benevolent instincts, of kindly feeling for others, of sympathy with suffering and pain, should be sternly discouraged; and that in country districts it is advisable further to varnish your real sentiments by a cloak of religious hypocrisy. If Dr. Snow believes that these are the conditions mainly contributory to success he must believe also that the most successful members of the profession are men who have practised what he preaches. He may certainly be said to call down upon himself the condemnation generally extended to birds that foul their own nests.

The "Eminent London Physician who has received a Baronetcy" is delicious. Assuming that a person answering this description may have been asked to contribute, the application must have been thrown into the waste-paper basket and picked out by a manservant who has amused himself by giving his own version of his employer's experiences and opinions. "Jeames" is writ large over the whole of the composition. According to his story, the eminent physician is not a physician at all but a surgeon, and he became full surgeon to a "great and famous hospital" within seven years of obtaining a "minor" appointment there! He stepped into sudden notoriety by a "trivial operation" upon a well-known statesman, to whose bedside he was called in consultation. The medical "Jeames" has so far had no justice done to him in fiction, and this particular specimen ought to be induced to publish his reminiscences for the delight of mankind. Many of us could contribute an anecdote or two to such an autobiography. A friend of mine had occasion to go often to an "eminent physician," and said to Jeames, "You will be tired of opening the door to me." "Not at all, sir," was the gracious reply; "you are but a hunit in the hocean." Another Jeames was accustomed to say, during his master's occasional absences: "you had better try hopposite. There's a very respectable man hopposite as we often sends to when Sir William is habsent. His name is Jenner."

Mr. Ernest Kingscote begins by taking an absolutely irrelevant story from Sir Walter Scott and spoiling it in the telling. The hero of the original story was so far from being an Aberdeen graduate that he had not any sort of medical qualification. When Sir Walter was sheriff-depute of Selkirkshire an illiterate farrier in the district, who was charged with some minor offence, got away across the border, and a year or two afterwards Sir Walter met him accidentally in Carlisle and asked what he was doing. The man said he was practising as a doctor and told the well-known "calamy and lodomy" story with the conclusion about Flodden Field. There is no evidence that he was successful, especially as Mr. Kingscote defines "success," that is, as a "lucrative practice with congenial social surroundings." Mr. Kingscote tabulates a little catalogue of ordinary requirements in the way of "sufficient ability," "astute business instinct," &c., and provokes a quotation from Scott of quite a different character from his own:—

> "So think the vulgar. Life and Time,
> Ring all their joys in one dull chime,
> Of luxury and ease."

Part of Mr. Kingscote's advice is to avoid originality, but in quoting a precept from Assheton Smith he spells the famous sportsman's name in quite an original manner.

The passages of this extraordinary medley which appear to be editorial cuttings from books or introductory addresses are all in what lawyers, I believe, call "common form," and contain the usual recommendations to the practice of sundry prosaic virtues. But "Sir X. Z., a well-known London specialist," merits comment, as he, like your correspondents, is contributing information as to what a specialist may be. It is interesting to know that "*when* he commenced practice he passed *with distinction* all the usual examinations." Most people pass some of the usual examinations before they commence practice, and they are not informed by the examiners whether they have passed with distinction or without. In spite of his "distinction" X. Z. appears to have found himself only "one of hundreds more or less clever men," "a hunit in the hocean," in fact; and he decided to become a "specialist" because as a general physician he would have been "unable to address himself to the public." He selected a specialty "which appealed to a large class of persons, and in which a fair proportion of cases were curable," and he does not on his own showing appear to have made any endeavour to equip himself with any unusual amount of knowledge of the subjects to which his attention was professedly directed. He seems to have calculated that the recoveries of the many people who got well would be credited to his superhuman skill, and that the condition of those who did not get well would be attributed to the neglect or the want of skill of the general practitioners with whom he was associated in treating them, and of whom he was manifestly ready to make scapegoats. He is of opinion not only that specialism is the best road to success, but also that any specialty may easily be made subservient to the advancement of the man who professes it. All that is necessary is to write as much as possible in lay papers and medical periodicals, to belong to, or if necessary, start some special hospital, and, above all, to entertain as largely as possible both the rank and file of the profession and the public. It seems impossible to believe that "Sir X. Z." is a real person, but if he be a creature of the editor's imagination the medical profession has a right to resent such a picture being presented to the public as a medical portrait. "Sir X. Z.'s" self-satisfaction with his own dishonesty is amusing; it is equal to that of Gil Blas.

This autobiography of a successful specialist would seem to me to be too preposterous for credence, even in a popular lay magazine, making not the slightest appeal to intellectual people, if I did not detect in the letters of some, at least one, of your correspondents a tendency to believe that such charlatans were a force in our professional ranks. I can claim a not inconsiderable acquaintance with medical practitioners, many of them eminently successful; some, in a sense, unsuccessful, and these by no means always the least capable, but it is common experience that the ignorant and dishonest men, such as the "Sir X. Z." of the *Grand Magazine*, will almost invariably fulfil the tradition about the porcine race, that they cut their throats in swimming. It is of high advantage to be "clever," to make use of a much abused word; but it is quite possible to be "too clever by half," and in that case detection and extinction are apt to follow as cause and effect. I am, Sirs, yours faithfully,

F.R.C.S.

To the Editors of THE LANCET.

SIRS,—The interesting correspondence under this heading should have a useful issue if it not only brings to general notice the many difficulties of the present position but also enables us to see a way out. Personally, I do not think we need trouble ourselves about smoothing the path for the man whose claim to being a specialist rests on his own opinion of himself. Nor need we try to make it easy for him to secure the comfort and affluence which he imagines to be the reward of specialism. It is true that in a few instances such a man's estimate of himself may be well-founded and his failure to reap his reward may be a real loss to the community. But in the vast majority of cases such a man's claims to special capacity are as illusory as are the rewards he believes to be within his grasp if he could obtain the position he desires.

What we as a profession are more concerned with is the undoubted failure of the public to secure the advantages that it ought to secure from the particular knowledge and skill of those whose claims to specialism rests on the well-founded opinion of their fellow practitioners. From want of proper organisation of the profession a very considerable number of patients, whose simple ailments do not require it, are under treatment by men whose colleagues would unhesitatingly acclaim them as specialists, whilst still larger numbers are deprived of the services of these same specialists though their prospects of rapid recovery would certainly be increased by such help. I believe this to be due to the fundamental error as to the true basis of "specialised practice." In modern medical ethics the chief crime of a specialist is that he wanders from his speciality and treats cases not strictly within his scope. In the opinion of some it would be better if it became the chief crime of a specialist to treat any patient independently. The special knowledge of a specialist should be used not to attract members of the public to seek his aid, it should be at the disposal of other members of the profession to assist or to supplement their therapeutic efforts. I have satisfied myself that the fact that nearly all specialists, including in this term the special physician and special surgeon, as well as the eye, ear, and throat specialist, undertake independent private practice is an undoubted bar to that free use of their services which would be made by general practitioners if they restricted their work to consultations with their colleagues and to treatment carried out in coöperation with them. The introduction of a patient to Harpole-street often proves a very expensive experiment for a general practitioner. The specialist to whom the patient is sent may be scrupulous beyond reproach in his method of dealing with the case, but there are many other door-plates in the neighbourhood, and so long as specialists undertake independent treatment of cases that "come on their own," as the saying is, the danger of a patient and his friends and acquaintances acquiring a Harpole-street habit is a serious one.

There have always been a few specialists who have taken up the strictly consultative attitude and their numbers are said to be slowly increasing. If this attitude became common amongst those who are attached to the great hospitals of London it would no doubt spread to all those centres of population capable of supporting specialists. It can hardly be doubted that this would be to the advantage of the specialists themselves, of the general practitioners, and of those members of the public who have real need of the experience that can only be acquired by specialisation. It would settle once for all that the proper answer to the question, What is a specialist? is one who is so regarded by his professional colleagues. It would make it clear to the public that the profession did not regard as a specialist one who undertook to carry out treatment independently of a general practitioner. It would make it more than ever useless for a man whose colleagues did not recognise his claims as a specialist to announce that he was one on his door-plate. I am, Sirs, yours faithfully,

Sept. 10th, 1906. E.

PORTUGUESE QUARANTINE REGULATIONS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

PART II.[1]

THE NEW *MARITIME DISINFECTING STATION AT LISBON.*—THE NEW HARBOUR WORKS.—THE BRITISH MEMBERS OF THE INTERNATIONAL MEDICAL CONGRESS AND THE "OPHIR" *BLUNDER.*—*THE OLD LAZARET FORT AND* PRISON.—THE MODERN LAZARET.

THE port of Lisbon, if considered from the point of view of the number of ships by which it is frequented, may be estimated as the twelfth in importance of all the ports of Europe. This is due in a large measure to its continual communications with the Brazils. Here, then, was established a large lazaret and its history, a somewhat sinister history, dates back for some centuries. It is situated on the left bank of the Tagus at some distance from Lisbon, nearer to the sea and nearly opposite the famous Balem tower. The importance of this lazaret may be judged from the fact that for purposes of quarantine or of disinfection of luggage in the course of ten years from 1890 to 1900 the number of persons detained here reached a total of 96,423. Now the lazaret is to a large extent abandoned and this is one among several good results which the meeting of the Fifteenth International Congress of Medicine at Lisbon helped to bring about. A maritime disinfecting station has been built at Lisbon itself and its completion was hurried forward so that everything should be in working order when the members of the Congress arrived. The station forms a part of the great scheme of the new harbour works and was opened towards the close of the year 1905. In most respects it is similar to the disinfecting station established at Leixoes and previously described. Formerly ships had to go to the lazaret on the other side of the Tagus. Here the travellers were exploited by boatmen. The water was often rough and then the boatmen would charge high prices for landing the passengers. There were many hardships and much loss of time. Now these annoyances are avoided except when quarantine detention is actually imposed and then there is no need to hurry, for there is more time than enough. This, however, only applies to infected ships. In most cases medical inspection and disinfection alone are necessary, and then, as a result of the harbour works, the ship can moor alongside of the new disinfection station. Even at low tide there are eight metres of water, so that very large ships can come alongside.

It was against this wall and close to the disinfecting station that arrangements had been made to moor the Orient Line steamer *Ophir* which was chartered to convey the greater part of the British members of the Fifteenth International Medical Congress to Lisbon. The water here is deep and pure—that is to say, there are no sewer outfalls anywhere in the neighbourhood. On the contrary, from a point near to the arsenal right away some distance on the road to the Balem tower, a main collecting sewer has been built within the new embankment. Here on this embankment an electric tram would have taken the passengers residing on the *Ophir* to the centre of the town in a few minutes, while under the embankment a main sewer conveys all sewage far away towards the sea. The appended map shows well the details I am describing (see Fig. 2) On the other side of the Commercial, or the so-called "Black Horse Square," where the *Ophir* eventually rode at anchor, are several of the worst sewer outfalls of Lisbon—indeed, the whole question of the *Ophir* is so utterly to the discredit of British management that it should not be forgotten but should be constantly recalled as a lesson and a warning for the future. It will be remembered that a scare was raised about sewer outfalls and therefore the British contingent, through their representatives, declared that they did not wish their ship to come alongside of the quay. The mooring place secured for them was consequently given up, and of course the Germans, being as usual very much better informed, eagerly availed themselves of the opportunity to secure this excellent berth for their ship the *Oceana* (see Fig. 3). Surely, before thus rashly giving up a favoured position a map of the sewers could have been procured. There was no difficulty in obtaining such a map. This map shows that where the *Ophir* should have been moored, and where Dr. Henry de Rothschild moored his yacht the *Nemesis* and the Germans their ship *Oceana*, there are no sewer outfalls whatsoever. The *Ophir*, however, and to avoid sewer outfalls where they did not exist, went to a most inconvenient position and this facing a district where they did exist—in fact, they cast anchor just opposite no less than five large sewer outfalls. Fortunately, there is so much water and the *Ophir* was so far from the shore that these five sewer-mouths were not likely to do any harm, but each time members of the British contingent went to shore in rowing boats or in a tender they had to navigate through the sewage. To land at "Black Horse Square" they had pass close to the mouth of one of the most obnoxious an odoriferous of these sewer outfalls. If in spite of th enormous volume of salt water in the Tagus those sew outfalls that still remain occasion any risk to persons o board ships then the *Ophir* anchored where the risk wa greater than if she had gone alongside as originally i tended. ("Black Horse Square" is marked in the ma just to the N. and W of the fifth s marking sewer outfal counting from the right or eastern side of the map.)

The new harbour works at Lisbon have involved a expenditure of £2,880,000, and an embankment some fiv miles long has been built together with basins, gravin docks, and vertical quays accessible to the largest ships a whatever state of the tide. There is a vertical quay 10,24 feet in length with 26 feet 3 inches of water at low tide These great works will undoubtedly have some effect upo the health of the town. Not only is a large portion of th sewage conveyed away by the main sewer laid in th embankment, but this building, by drying up the lan and preventing the exposure of mud at low tide, ha put an end to the excessive prevalence of low feve among those who lived close to the water's edge. Th mortality from typhoid fever, taking the average for periods of four years each, was equal to 0·38 per 1000 inhabitants annually from 1881 to 1885. During the next four years it was 0·35 per 1000. The new harbour works were commenced in 1892 and concluded in 1898. For the period 1891 to 1895 the maximum deaths from typhoid fever was reached, the proportion being 0·39 per 1000. Then as the works approached completion the figures fell to 0·29 per 1000 from 1898 to 1900 and to only 0·21 per 1000 from 1901 to 1905. It does not follow that the harbour works have brought about this reduction in typhoid fever, but the digging and the disturbance of the earth while the works were going on do seem to have increased the number of cases. On the other hand, the better sanitation resulting from the completion of the works was doubtless one of the contributory causes of the present falling off in the number of deaths from that disease

The new maritime disinfecting station has been built on a portion of the vertical quay to the west of Lisbon, and at the base of the hill where the Royal palace of Necessidados is situated. The railway lines are laid here so that goods can be loaded on the trucks as soon as they have been disinfected. From the disinf[illegible]tation luggage can be sent direct to any part of E from a ship to take it to a railway station in Lisbon. Soon a railway station will be built here and then passengers will be able to take their tickets and depart without penetrating the city. At present, however, only the line exists and not the railway station. But there is a post and telegraph office, so that the passengers can at once communicate with their friends, and there are stationery and desks ready for them in the waiting-rooms.

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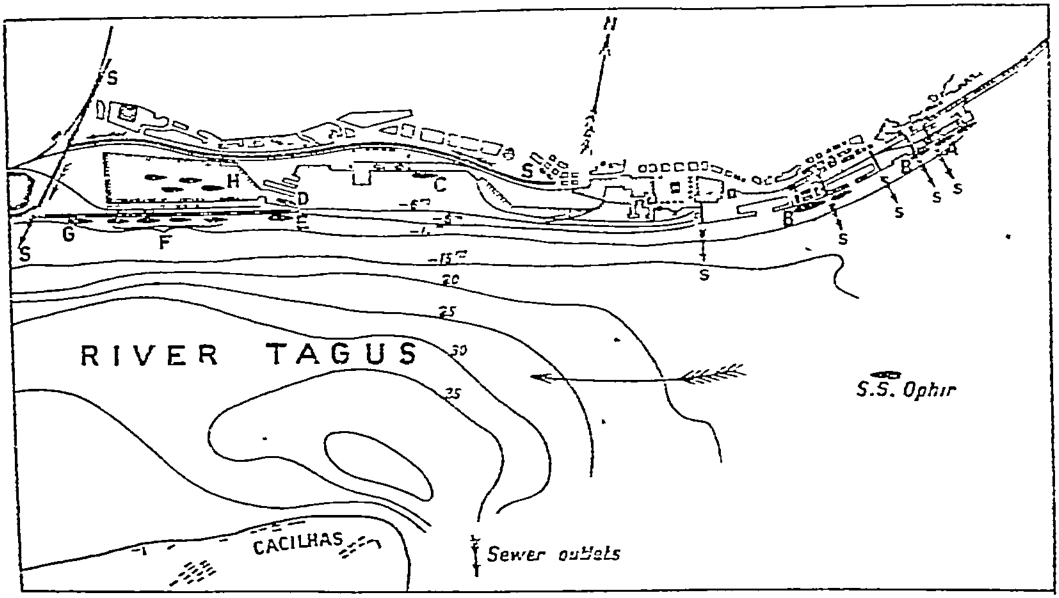
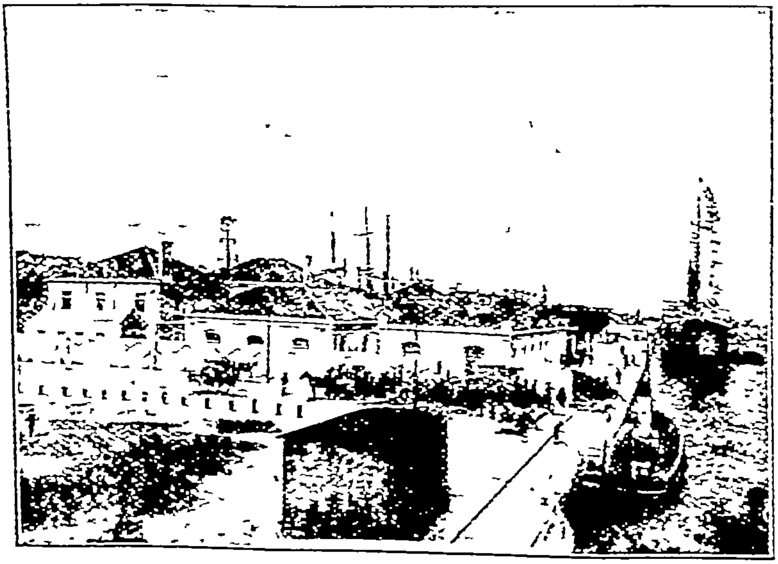
[1] Part I. was published in THE LANCET of Sept. 8th, p. 684.

FIG. 2.



A, Cunard Line B, Nacional Line. s Sewer outlets S, Sewer. C, Insulana Line D, Yacht *Nemesis* E, s.s. *Oceana* F, Coal and timber boats. G, Messageries Maritimes H, Small boats lying in the Alcantara basin.

FIG 3



The new maritime disinfecting station at Lisbon In the distance, with display of flags, the s.s. Oceana moored alongside of the new sea wall, and having on board the German contingent of the Fifteenth International Congress of Medicine.

The first class waiting-room has a parquetted floor and all necessary comforts. The medical officers and the secretaries have commodious surgeries and offices and, as at Oporto, there are the baths with rooms on one side in which to undress and rooms on the other side where the disinfected clothing is put on. The same is provided for the attendants, the dock labourers, and all who have to handle the clothes or merchandise that may be infected. Throughout, here as at Leixoes, there are excellent English closets, with a two-gallon flush, which drain into Mouras tanks, the overflow going to the harbour. Leather or hides and other articles that are more likely to carry germs are in preference disinfected at the lazaret on the other side of the Tagus. At Lisbon the Clayton apparatus, and it is of the largest model, stands on shore. As the ships come alongside it is easy by tubes to put it in connexion with the hold or cabins which have to be disinfected. On shore there are six large rooms where goods may be spread out; perforated pipes go all round these places and discharge sulphurous fumes. There are also apertures in the wall where ordinary sulphur can be ignited. Then there are some small rooms which are used when there is not much to fumigate. Three

Geneste and Herscher stoves for disinfecting with steam under pressure are generally used for clothes, underclothes, and bedding, *and these are of the most recent* pattern. The wall and flooring are so arranged as to be easily washed. The fittings are mostly of metal so that the *premises can be kept in a clean aseptic condition.* Finally, there are some small barracks for soldiers and custom-house officials which are admirably clean and well drained. *The building throughout* is illuminated with electricity and there is nothing gloomy, forbidding, or unpleasant about the place.

Very different, indeed, is the impression that will be produced upon anyone who visits the old lazaret on the other side of the water. The experience is all the more interesting as different stages through which the practice of quarantine has passed may be seen in a manner that constitutes a genuine object-lesson. The approach from the water is most picturesque. Just where the broad Tagus narrows as it nears the sea the Moors, to defend the entrance of the Lisbon waters, constructed on the northern side a fortress where to-day the majestic Belem Tower stands. On the southern side, *just opposite this tower,* the Portuguese built the fortress of St. Sebastian Caparica which constituted a part of the military defence of Lisbon up to 1815, when it was converted into the sanitary defence of the capital. Before that date the quarantine station was in the little village of Trafaria which is in the immediate neighbourhood but nearer the mouth of the river. *In the casemates of* the fort unfortunate travellers were kept in quarantine. As these places are so built as to protect soldiers from shot or shell they have but small *entrances and little light or ventilation.* Nor were any artificial means employed to pump air to the farther end of these narrow casemates which look like dungeons and have no windows. *To be imprisoned in such* places was certainly enough to favour the development of many diseases.

Approaching the lazaret in the *steam* launch of the port sanitary authority *this fort is* seen poised on the edge of a precipitous yellow sandstone rock. Lower down, as well as *on ledges towards the summit of the cliff, there is some* luxuriant vegetation *in which eucalyptus* trees *predominate.* At the foot of the hill and cliff there are a great number of low buildings and *sheds. Here merchandise was disinfected.* But *only small boats and barges can approach* the little landing-stage. It must have been a great trouble and expense to unload in barges or tenders the cargo of a *ship at anchor* and *the luggage of passengers, to bring it* all to shore, and then to take it back again to the ship after dis*infection.* The passengers *had to walk up the hill between* walls 30 to 40 feet high that block out all view of the surrounding country. Nor is it possible to see more than a few yards in front or behind *for the passage between the walls* twists and twirls. At each corner or turn there is a sentinel box. This was deemed necessary to guard the approach to the fortress. *But when finally one of the terraces of the* fort is reached then a sublime view of the Tagus is obtained, disclosing fleets at anchor in the blue waters and beyond the white glare of the *houses and* palaces of Lisbon. How tantalising such a view must have been to the quarantine prisoners. But the old casemates of this fortress are *only* shown as curiosities, as historical mementoes of the harsh measures formerly applied. A small portion of the fort, which is more *like* an *ordinary* house and *was probably originally* intended for the *officers'* quarters, is still used, but only on rare occasions, for purposes of isolation. Here I was shown the two sombre *rooms where, in 1899, the medical officer* in charge lived in strict isolation during 21 days with a soldier who came from Oporto and was found to be suffering from plague. *Here also* a professor who contracted the plague was confined. It was not thought that such rigorous isolation was necessary; but a great panic *prevailed* at that moment, and it was more for the sake of quieting the people at Lisbon than because there was any real danger that these exaggerated precautions were taken.

The lazaret that is now in use stands behind the picturesque and threatening fortress. Though the construction was commenced *as* far back as 1860, and though the building was inaugurated in 1865, it is still considered a model institution. While the fort is on the *crest of the precipitous* rock or *cliff the* lazaret is at a higher level on the top of the hill which caps the rock. In design it may be compared to a wheel which has seven spokes, *each consisting* of long *buildings of three or four* storeys high, of which six are furnished for the reception of travellers and the seventh for the *staff. The whole construction is like* a succession of oblong or pavilion-shaped hotels all pointing to the one and same centre but separated from each other. A circular *central structure that* may be called the hub of the wheel plays a very important part in the scheme. Here on the ground floor are the kitchen, sculleries, and all that *relates to the feeding of the community.* But the spokes of the wheel instead of penetrating the hub are separated from it by a space or circular court six metres wide. *The first floor above the kitchen is a large circular hall* surrounded by windows which face the windows at the extremities of seven long pavilions. Here visitors are admitted *and across the open space of the circular court* they may speak to the persons in quarantine. Thus from the hub of the wheel the visitor shouts to the inhabitants *of the spokes of the* wheel whatever he may have to say. It is an ingenious method of keeping people apart and yet of enabling them to see and speak to each other. The windows *are protected by strong wire grating, so that nothing should* be thrown across. On one occasion there were 1500 persons simultaneously in quarantine in these buildings and a greater *number could have been accommodated. But now* as quarantine is so rarely enforced the place has a very deserted aspect. Nevertheless, in one *dining-room the table* was all ready *laid for* some 30 or 40 people and there were *cooks* in the kitchen ready to prepare dinner for them. At any moment an *infected ship might come into port* and *its crew and passengers have to be detained. The third-class* passengers sleep in *long* dormitories under the roof on the top floor. It seemed *to me* that if all the beds were occupied *there would be overcrowding. The first-class passengers* have drawing-rooms and terraces commanding panoramic views and it cannot be said that there *is any* hardship in *being detained for a few days on so beautiful a spot.* It is *not like the old,* dark, long, narrow casemates with their plank beds at the foot of each wall. No great hardship is *now involved in being detained, still the question may be* asked whether detention of healthy passengers *might not* be abandoned altogether. From 1880 to 1901 196,457 *passengers and crews have been detained* at the Lisbon lazaret. What illness of a dangerous character occurred among all these people after they had landed? Five cases of *yellow fever are recorded; the last happened in 1902.* And all the five patients were members of ships' crews and not passengers, and were probably ill before they landed. In *the same way there was one sailor* who had cholera in 1893. *The few cases of plague* observed seemed to indicate that the disease had been contracted on board and *not at the infected ports,* and this not by passengers but by handling cargo. So now much attention is devoted to the disinfection of merchandise, *of luggage, of personal linen,* and the killing *of rats and other vermin, which is probably much* more useful than detaining passengers in quarantine. Thus is Portugal coming into line with the most *advanced countries so far as the question of quarantine is concerned.*

MANCHESTER.

(FROM OUR OWN *CORRESPONDENT.*)

Colony for Epileptics at Langho.

As was mentioned last week, a new colony for epileptics was opened at Langho on *Sept. 3rd by the* Earl of Derby, Lord Lieutenant of Lancashire. It is the outcome of a joint scheme promoted by the guardians of the *Chorlton union and those of the* township of Manchester. There have, of course, been privately supported institutions of a similar character but *this is the first public epileptic home in the country.* It is in an open situation near Whalley in the valley of the Ribble. The present buildings will accommodate 272 patients *with the necessary staff,* but there is room for large extensions as they may be required. There are separate "homes" for the patients, *each containing* 40 beds, and they are designed *to* have, as far as possible, "a cheerful domestic character." Although a family of 40 requires a considerable *enlargement of our notions of the* domestic hearth, the change will be a happy one for the inmates, who have so far *had to be accommodated* in the necessarily somewhat unsympathetic refuge of the workhouses. The unsatisfactory results to themselves and the other inmates have *led the guardians to attempt* to deal with the *difficult* problem of the epileptics on a humane and, it is believed, scientific basis. It is a step in the direction of more careful classification of workhouse patients. The estate at Langho comprises 166 acres of elevated and undulating land, with extensive views of the surrounding country. There are 16 buildings now erected. The administrative block is in a central position, while there are a receiving and hospital block, an assembly hall, a central kitchen and store block, medical superintendent's house, a power house, general laundry block, with workshops for brushmakers, upholsterers, carpenters, tailors, shoemakers, and plumbers. The homes are in groups to the right and left of the administrative buildings, and are fitted up on the most approved principles. The cost, with administrative capacity for about 500 patients, is £78,500, which, with the cost of the site, brings it to about £100,000. The lighting is by electricity generated in the power house and water is obtained from the Blackburn main. After the opening ceremony a luncheon took place, presided over by Dr. J. M. Rhodes. In proposing the health of Lord Derby, he spoke of the unhappy lot of epileptics, whether in or outside our workhouses. Employments were almost, and where machinery was used, quite closed to them. Since 1890 the rate of epilepsy had been declining, and "he was not sure that the enormous number of people in the asylums had not prevented the multiplication of the unfit. He hoped it was so. Many epileptics could do good hard work, and the best kind for them—work on the land—would be provided at that colony."

Black Smoke in Bury.

People who live in a smoky town get so accustomed to it that they are nearly unconscious of the serious evils that accompany the pouring out of unconsumed carbon with its tarry associates. The Bury town council passed a resolution recently to restrict the emission of black smoke to seven minutes during the hour instead of allowing ten minutes as at present. At a meeting on Sept. 6th some of the members thought the time allowed too short and that they should have eight minutes' grace. One of the medical members, Dr. Greenhalgh, said that he could not understand this tender consideration in regard to the question of black smoke. Personally, he thought that it should be abolished and it might easily be reduced to a minimum. No doubt he is right, and it seems discreditable that such a nuisance as black smoke should, in these days of advanced science, be allowed to pollute and defile so much of the manufacturing districts. Even Manchester, not reputed a smokeless town, only allows three minutes to the hour, but it is only fair to give credit to Salford, which apparently loves smoke more than her neighbour, and therefore gives a more liberal allowance of time for the emission of black fumes which roll over Manchester regardless of the dark boundary, the Irwell.

Antivaccinationists' Refuge.

To show how well Heywood deserves the title sometimes given to it of the antivaccinationists' refuge it is only necessary to mention the proceedings of one day about a fortnight since. A man came from Audley, Staffordshire, and said that he came purposely to get "the certificate," which was granted. Certificates were also granted to 15 other applicants from Bury, Summerseat, Newton Heath, Levenshulme, Radcliffe, and Pendleton.

Sept. 11th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Etiology of Plague.

THE opening lecture of the post-graduate course in connexion with the Glasgow Royal Infirmary was delivered on the afternoon of Sept. 4th by Major George Lamb, I.M.S., director of the Pasteur Institute of India and chief of the Royal Commission on Plague. The lecture, which was largely attended, dealt with the Etiology of Plague. Major Lamb first drew attention to the main conclusions which are generally accepted in connexion with the epidemiology of plague. These, he said, are: (1) Plague, except in the pneumonic form, is not particularly infectious or contagious, and man-to-man infection plays no important part in the spread of the disease in India; (2) the infection of plague is in the houses and huts and may remain there for some time; (3) plague, when once started, exhibits a most marked seasonal prevalence; (4) epidemic plague is associated with, and generally preceded by, an epizootic amongst rats. The lecturer next went on to discuss the possible means of the spread of plague from rat to rat and from rat to man. He showed from experimental and statistical evidence that alimentary infection does not take place. Further, he showed that all the facts pointed to the infection of plague finding an entrance to the body through the cutaneous surface. In discussing the methods by means of which cutaneous infection might take place it was definitely showed that infection from the soil through cracks or abrasions of the skin of the foot could play no part in the spread of the disease. Major Lamb then described in considerable detail the series of investigations and ingenious experiments he had carried out, as a result of which it seemed impossible to escape the conviction that the rat flea was the means by which infection is carried from rat to rat and from man to man. The work which the commission still has to face is to find how the flea transmits the infection, and also to discover an explanation for the seasonal prevalence of the plague. Major Lamb, in conclusion, stated that the rat which occurs in Britain is the brown Norwegian rat and not the black rat of India, and it is probably on that account that there has been no serious outbreak of plague in this country. The particular flea which carries the infection has been found only once in this country.

The West of Scotland Convalescent Home, Dunoon.

The thirty-seventh annual report of this institution has just been issued by the directors. Up to the present time since the opening of the home 110,357 patients have been admitted. At present there is accommodation for 250 convalescents, and during the past year 4756 new cases were received. Of these 4433 were perfectly restored to health, 188 were much improved, 132 did not improve, three died, and 248 are still in the institution. The greater number of the patients were drawn from the city of Glasgow, but a considerable proportion came from villages and towns many miles distant. Financially, the year has been a most successful one. The total income from all sources has been £9310 12*s*. 7*d*., while the expenditure (including a transference of £2000 from ordinary bank account to the fund available for building purposes) has been £8762 2*s*. 2*d*. This leaves a balance of £548 10*s*. 5*d*. on the right side. Owing to the great demand for admission the directors have decided again to add to their extensive buildings. The new wing will provide 57 additional beds, as well as increased facilities for the working of the institution. This will cost nearly £6000 and will be the sixth addition to the buildings since their inauguration in 1869. It is pointed out in the report that although in summer there are more applicants for admission than can be accommodated yet in winter this is by no means the case.

Sept. 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Sanitary Association.

THE council of the Dublin Sanitary Association met at its offices in Dame-street on Sept. 7th and directed attention to the number of private slaughter-houses still existent in the city. The corporation is now provided with an admirable public abattoir, but comparatively little use is made of it, for there are at present 61 private slaughter-houses in which, according to a recent weekly return, 2872 animals were killed, while less than 700 were dealt with at the corporation establishment.

Sequel to the Longford County Infirmary Inquiry.

Another meeting of the committee of management of the Longford Infirmary was held on Sept. 5th, Dr. Hoare, the Roman Catholic Bishop, presiding. With reference to Mr. Mayne's report to the Local Government Board as to the insanitary state of the infirmary and to the necessity that the wards should be properly disinfected, Mr. J. W. Bond proposed a motion:—

> That some competent person be asked to make a report as to the work necessary for the disinfection and cleansing of the infirmary, with information also as to the probable cost.

The chairman proposed as an amendment:—

> That the workhouse hospital may be utilised until a solution of the present difficulty is found.

This amendment was lost and by consent the county surveyor was accepted as the person who should report on the repairs necessary to the infirmary, and Mr. Bond's motion was carried.

Medical Officer of Health of Belfast.

At a meeting of the corporation of Belfast in committee, held on Sept 5th, the question of the salary to be paid to the new medical officer of health was considered. The council had previously fixed £600 a year but the Local Government Board objected that this was too small for a city of the size and importance of Belfast and requested the council to reconsider the manner. Hence the meeting of Sept. 5th. The chairman of the public health committee moved :—

> That it be a recommendation to the council to rescind the resolution passed on July 2nd fixing the salary of the medical superintendent officer of health at £600 and to fix the salary of that office at £800 per annum.

An amendment reaffirming the salary of £600 fixed by the council was moved and on a vote it was carried by 26 to 11 votes. As a result we have a salary of £600 a year offered for a medical officer of health in a city of 348,965 inhabitants Nor is this all. The medical officer of health of Belfast will have to provide the solution of almost every public-health question that has been settled in other cities, such as the main drainage of the city, the defective housing, the control of the milk-supply, infantile mortality, and prevalence of tuberculosis. Imagine a city the largest in population in Ireland paying (for example) its coroner, who is allowed private practice, more than its medical officer of health who must devote all his time to the duties. Interest now turns on what the Local Government Board will do; it will not be surprising if it refused to sanction the benighted action of the Belfast corporation.

The Recent Heat Wave.

Nothing could be more satisfactory than the ventilation of the new Royal Victoria Hospital during the recent warm weather. The highest shade temperature recorded outside the hospital in Belfast was 85° F. and on that day the inside temperature of the Royal Victoria Hospital was 67°. Thanks to the admirable working of the plenum system another pleasing feature was the total absence of flies.

Rainfall in August.

During August, in the vicinity of Belfast, rain fell on 22 days to the extent of 5·47 inches; that is almost one inch beyond the average for that month. The total rainfall for the past year is 26 99 inches, which is more than one inch beyond the average.

Sept. 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Acute Inflammatory Affections of the Intestine by Warm Baths.

AT a meeting of the French Association for the Advancement of Sciences held at Lyons from August 2nd to 7th Dr. Pujo reminded the meeting that the treatment of acute affections of the intestine has now for many years resolved itself almost exclusively into the use of ice and opium or else operation. Dr. Pujo recommended the warm bath of which the temperature should vary according to the season. The baths should be given frequently during a period of two hours followed by a similar period in bed. These alternations should be continued until the point of concentration of the disease has been dispersed, a result which obtains in a few days. Dr. Pujo has met with invariable success, and out of over 60 cases, 20 at least showed marked signs of true appendicitis and some of them of suppurative appendicitis. In this latter case quinine was given as well as the baths, and he also found it useful occasionally to give opium and calomel in addition Naturally this method of treatment demands the most careful precautions as to placing the patient in the bath. No sudden movement should be allowed and the patient should be kept straightened out as far as possible, only not so straight as to bring about compression of the lower part of the abdomen.

The Hæmopoietic Property of Serum.

At the same meeting M. P. Carnot and Mlle. Deflandre communicated the result of some researches which they had undertaken as to the cause of the renovation of the blood in bleeding. The result of these researches had been to confirm the presence in the serum of animals which had been bled of a substance capable of stimulating hæmopoiesis, and this substance they propose to call hæmopoietin as opposed to hæmolysin. Their experiments were carried out on the rabbit, and they found that if a rabbit was copiously bled, and that on the following day serum was taken from one of these animals then in the full tide of making fresh blood, and if this serum were injected into another rabbit, the latter on the following day showed marked hyperglobuly. As a rule, the red corpuscles showed 3 000,000 per cubic millimetre but a much higher rate was obtained in some cases. In one, for instance, on the third day the figure was 6 000,000 Compared with the hæmopoietic activity of the blood or serum collected during the full tide of blood renovation that of normal blood or serum is very weak. If the same animal is too frequently bled the hæmopoietic activity of the serum diminishes and finally it is replaced by hæmolytic activity It is probable that in the normal state these two factors counterbalance one another and that under the influence of certain factors sometimes one and sometimes the other predominates. M. Carnot and Mlle. Deflandre added that the hæmopoietic substance is not found in the figured elements of the blood but in the serum. It is destroyed at a temperature of 56° C and is most abundant in the blood on the morrow of a bleeding. Administration of it by subcutaneous injection is just as efficacious as when given intravenously. They consider that this treatment may be of great therapeutical use in certain cases of anæmia, and, in fact, in a case treated in this way they observed an augmentation of the red blood corpuscles running up to 1,000,000 in 48 hours.

The Fight against Lead Poisoning.

Professor Armand Gautier has just submitted to the Council of Hygiene and Public Health of the Seine a report upon cases of lead poisoning observed in the course of the last three years. The number of cases of lead poisoning in 1903 doubled in 1904 and for 1905 it doubled again. Professor Gautier concludes that white lead should be absolutely forbidden for painting the insides of buildings, but as far as regards the outside of buildings he expresses himself willing to wait until the Expert Commission nominated by the Minister of Commerce has sent in its report.

Sept. 11th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Restrictions on Experimental Treatment in Hospitals.

AT a recent meeting of the Medical Union of Vienna there was an animated discussion on an ordinance which has just been issued by the Minister of the Interior regarding the use of new methods of treatment in the case of hospital patients. This ordinance directs that experiments with new remedies or new methods are not to be made unless the patient has been previously informed of the fact and has given his consent. A full record must be kept showing all the details of the experiment as well as the names of the experimenters, assistants, and patients. The director of the clinic or the ward must either be present or must in some way supervise the whole proceedings, and a full report must be sent to the hospital director. Novel surgical operations must have been tried on animals before being employed for patients. Such methods may, however, be used in cases of emergency if previous methods of operating are dangerous or are likely to be unsuccessful The Austrian law is somewhat strict in defining the liability of a medical practitioner towards his patient; the penalties for neglect are regulated by paragraph 1325, which may be quoted here as the new regulation expressly calls attention to its existence. It is to the effect that anyone who inflicts bodily injury on another person must pay all the expenses of the medical attendance and medicine, as well as any other outlay incurred by the injured person in consequence of the injury. The injured person may claim compensation for the pain sustained through such act and also compensation for loss of income, or he may claim, if he becomes permanently unfit for work, a sum equivalent to the loss of his future income. Paragraph 1327 makes the person who inflicts the injury responsible to the family of the injured person if the latter dies through such an act, by awarding them a certain sum as compensation. A medical man may also become responsible to a patient under the Civil Code, paragraph 355, the so-called paragraph *contra leges artis*, which stipulates that if a medical man shows gross professional ignorance in treating patients, and if such ignorance results in harm to the patient his diploma may be cancelled and he may be struck off the list of men entitled to practise medicine until he proves by passing an examination that he has a sufficient knowledge of his profession. If death results from such neglect imprisonment for a period varying from one month to one year may be inflicted upon him in addition to the financial responsibility. The law therefore is careful to protect the patient against the practitioner, but, on the other hand, the practitioner has hardly any protection against his patients. It is to be expected that the recent ordinance will not interfere materially with the scientific work going on in the clinics. It is in reality a concession to an influential section of the population, consisting of persons favourably inclined to the antivivisectionist movement. It will, however, serve as a valuable check upon some indefensible experiments which are made now and then.

Reform of the Out-patient Department in the State Hospitals.

The governor of Lower Austria, as chief of the board of the State hospitals, is now introducing a long-desired reform. The main feature of the new system is the prevention of abuse of the hospitals by the wealthier classes and for this purpose an Armutszeugnis, or documentary evidence of inability to pay medical fees, must be shown by the applicant. Such evidence is obtainable from the landlord of the house where the applicant lives or from the guardians of the poor in each district and must prove that the applicant's rent is less than 600 kronen (£25) and that his income does not exceed £100 a year. On presentation of this document the applicant receives at the hospital a card admitting him to the out-patient department. Persons in easy circumstances will in this way be prevented from attending the hospitals and those who are in the service of shopkeepers, manufacturers, and similar employers of labour will have to be attended by practitioners engaged in accordance with the Employers' Medical Provision Act of 1889, under which all persons occupying posts in business houses are entitled to medical attendance. (This Act itself is an old source of grievance amongst the bulk of the practitioners.) Domestic servants, also, who form a large proportion of the out-patients, will in future be debarred and will have to look to their employers to obtain medical attendance for them. Exceptions are granted if the treatment requires special apparatus, special knowledge, or a very long time, and also in cases of emergency, but in such circumstances moderate payments may be claimed from well-to-do persons. Discharged in-patients may continue as out-patients until their recovery. Bandages will be given for use in the hospitals but not for use at home, and no medicine will be supplied except to patients unable to pay for it. Infectious cases will be referred to the isolation hospitals and the police must be informed if in any instance violence or foul play is suspected. Otherwise no writing except the making of short notes will be required from the medical staff. Private patients may be sent to the out-patient department by any medical practitioner or professor if the case is interesting; for such patients a special admission card is necessary and treatment is free. It is estimated that the saving which will result from these new regulations will amount to not less than 24 per cent. of the yearly expenditure, but the number of the patients will, of course, be greatly reduced, so that the effect on scientific work and the opportunities for clinical teaching must be watched.

The Sale of Flowers and Fruit.

The sale of flowers and fruit is largely carried on by street-vendors, who do not always comply with the rules of hygiene necessary in this line of business. As an outcome of some convictions for offences against the regulations relative to food supply the board of health now requires the dealers in such articles to keep their fruit covered, so as to protect it from dust and other contamination, and not to offer for sale anything which is in a damaged or bad condition. Offenders will be liable to have their stock seized and their licences cancelled.

Injury to the Conus Medullaris.

At a recent meeting of the Society for the Study of Psychiatry and Neurology Professor Schlesinger showed a man who 16 years ago fell from the third floor of a house and was paralysed up to the umbilicus. After three years his condition improved so much that he was able to resume work, when he again fell from a considerable height. He suffered again from paralysis of the lower extremities, with disturbances of the function of the bladder and rectum. This time only the limbs recovered, and the impaired action of the bladder remained so that a severe septic cystitis endangered the life of the patient. He suffers at the present time—seven years after the second fall—from weakness of the legs, loss of sensation for heat and cold in the region supplied by the sacral and first lumbar segments, and incontinence of urine which trickles away without the patient feeling it. Sexual desire is entirely absent, but the man has become the father of two children. In similar cases in which necropsies have been made it has been found that the entire sacral medulla and the grey substance of the lumbar portion of the spinal cord were destroyed. Patients may live for many years with these lesions and may have children, so that the prognosis is not unfavourable, but there is always a liability to ascending pyelonephritis consequent upon the inevitable cystitis.

Sept. 11th.

Obituary.

JOHN CAMERON, M.D. GLASG., F.R.C.P. LOND.

THE death of Dr. John Cameron, which took place at his residence, 4, Rodney-street, Liverpool, on August 20th, at the age of 88 years, has removed a prominent figure from the ranks of the profession in that town. Dr. Cameron went to Liverpool from the Highlands of Scotland in 1839, in which year he obtained the diploma of the Royal College of Surgeons of Edinburgh. For a few years he was identified with the Liverpool South Dispensary as one of its medical officers. In 1843 he graduated as M.D. at the University of Glasgow and in 1873 he became a Fellow of the Royal College of Physicians of London, having obtained the Membership in 1859. A feature in Dr. Cameron's life was his long association with the Royal Southern Hospital. He was originally appointed physician to the hospital for ten years, the customary period at the time. At the end of the term he was appointed for a further period of ten years and later the appointment was made lifelong, his resignation only taking place a few years back. He was always ready to assist the cause of medical science and when the University College scheme was first started he contributed £500. His connexion with the Liverpool Medical Institution was of a unique character. On March 15th, 1899, a gathering was held in the large theatre of the society to celebrate the diamond jubilee of his membership. Having joined the society in 1839 he had been a member of council for many years; he was twice general secretary, vice-president in 1868, and president during the session 1872–73. For 50 years he was continuously in office as a trustee and no member attended more assiduously to his duties. The diamond jubilee gathering was an interesting occasion and was largely attended by the members. The funeral took place on August 23rd and was quite a representative one.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following foreign eminent medical men are announced:—Dr. O. Vierordt, professor of medicine in Heidelberg.—Dr. Jaumes, formerly professor of forensic medicine in Montpellier.—Dr. Gouraud, formerly on the staff of the Paris Hospitals.—Dr. Morache, professor of forensic medicine in the University of Bordeaux.—Dr. Isidor von Neumann, emeritus professor of dermatology and syphilis in Vienna, at the age of 74 years. He studied in Vienna and was assistant to Hebra and subsequently succeeded to his chair. His published works include a Manual of Skin Diseases and another on Syphilis. Three years ago he was ennobled by the Emperor.

Medical News.

THE DUTIES OF PUBLIC VACCINATORS.—At a meeting of the St. Columb (Cornwall) board of guardians held on August 30th a letter was read from the Local Government Board in reference to one of the public vaccinators of the union. The Board stated that the gentleman referred to was in the habit of granting certificates of postponement on trivial grounds, that he had failed to vaccinate his own child successfully, and that he had given a certificate of insusceptibility for the infant. The Board further wished to know if the guardians had investigated the matter and also wished to know the three dates on which the public vaccinator operated on his own child, the source from which he obtained the lymph, and the results which the public vaccinator had obtained whilst using similar lymph on other children. After some discussion the guardians decided to ask the public vaccinator for a reply to these allegations.

THE LOCAL AUTHORITIES (TREASURY POWERS) ACT, 1906.—The Local Government Board has issued circulars to burial boards, town councils, urban district councils, and metropolitan borough councils drawing the attention of these bodies to certain of the provisions contained in the above-mentioned Act. The Act was passed for the purpose of transferring to the Local Government Board certain powers hitherto vested in the Treasury under enactments relating to local authorities. For instance, the borrowing of moneys by burial boards for the purposes of the Burial Acts had to be approved by the Treasury and in the same way the appropriation or alienation of land for the purposes of the Baths and Washhouses Acts had to be approved by the Treasury. Under the new Act the Local Government Board is substituted for the Treasury and it provides that the Board shall exercise as regards every local authority in England and Wales, except the London County Council, any power conferred on the Treasury by any enactment contained in, applied by, or incorporated with the Baths and Washhouses Acts, 1846 to 1899, or the Burial Acts, 1852 to 1900, or any local or private Act as respects dealings with property, loans, and matters connected therewith, and that all such enactments, and all enactments referring to the powers so conferred, shall be construed accordingly. Baths and washhouses, and the questions arising in regard to the disposal of the dead indubitably affect public health, and as the Local Government Board is more in touch with local authorities than that *quasi* obstruction the Treasury, it is likely that the new Act may have a useful bearing upon public health.

LITERARY INTELLIGENCE.—We have received a preliminary prospectus of a journal to be called the *International Medical Review*, to be edited by Dr Hugo Neumann of Berlin. The prospectus states that the object of the review in question is to establish under the form of a periodical journal a permanent exchange of professional knowledge and experience among the medical faculty of the whole civilised world. It is intended to publish the review quarterly and each issue will appear simultaneously in six languages—viz., English, German, French, Italian, Portuguese, and Spanish. The copies will be distributed among medical men in that language which or either native to the country in which they live is is the most generally understood there of all foreign languages. Thus, the review will be distributed in English to medical practitioners in Great Britain, her various colonies and dependencies, in the United States of America, and of foreign countries, in Japan and Persia. The German edition will be distributed to medical practitioners in German-speaking countries of Europe and also in Denmark, Holland, Norway and Sweden, the Russian Baltic provinces, and Finland. The French edition will be distributed to medical practitioners in France and her colonies, and in Belgium Bulgaria, the Dutch East and West Indies, and Greece. The Spanish edition will be distributed in Spain, the Spanish-speaking countries of South America, and the West Indian islands. The review will not only treat of purely scientific medicine but also of such medico-sociological subjects as the treatment of tuberculosis, the question of prostitution, the questions dealing with the medical laws and regulations in the various countries, climatic conditions, epidemiology, and tropical therapeutics. A special section is to be set aside for questions and answers. An epitome from the various medical publications will be given, especially drawn up with a view to meeting the wants of general practitioners. We await the appearance of the first number of this international review with interest.—A book entitled "Hypnotism and Suggestion" by Dr. Edwin Ash will shortly be published by Mr. J. Jacobs, 149, Edgware-road, London, W. The work, it is stated, is devoted almost entirely to practical hypnotism. It will consist of about 155 pages and the price will be 4*s.* net.—Messrs. Baillière, Tindall, and Cox have recently published a fifth edition, rewritten and revised throughout, of Professor Stewart's "Physiology." The fourth edition referred to in our issue of Sept. 1st is out of print.

ENTERIC FEVER IN PONTYPOOL.—Enteric fever has broken out in Pontypool and the surrounding district and up to Sept. 8th about 90 cases had been notified. At a meeting of the Pontypool district council held on Sept. 5th the medical officer of health (Mr. S. Butler Mason) reported that the epidemic was increasing, notwithstanding that the supply of water which had been regarded with suspicion had been cut off.

OPHTHALMIC APPOINTMENTS IN EGYPT.—The following appointments to sub-inspectorships have been recently made in connexion with the ophthalmic hospitals in Egypt:—Mr. George H. McLaren, M.R.C.S. Eng., L.R.C.P. Lond., late house surgeon, Birmingham and Midland Eye Hospital; and Mr. I. G. Macdonald, M.R.C.S. Eng., L.R.C.P. Lond., late house surgeon, Royal Westminster Ophthalmic Hospital. The appointments are for two years at a salary of £510 a year, with certain allowances. Mr. McLaren has already taken up his duties in Egypt and Mr. Macdonald will join the service in Egypt at the end of October.

CENTENARIANS.—Mr. John Burke of Tremadoc, who is 103 years of age, was quite recently a witness in a right-of-way case at the Festiniog county court. He declared that he had used the path nearly 100 years ago.—The *Times* of Sept. 8th states that Mr. Thomas Price of Welton, near Daventry, has attained his 103rd year. He is in possession of his faculties, and he recalls memorable events occurring in his early manhood, including the birth of Queen Victoria. He drove a well-known county family to London in their coach to attend her late Majesty's coronation. Mrs. Finn, one of his daughters, living at Strand-on-the-Green, Chiswick, is 77 years of age, and has several great-grandchildren.—Mrs. Mary Glover of Hoops on Sept. 7th attained the hundredth anniversary of her birthday.

ROCHDALE INFIRMARY.—A welcome donation of £5000 has been given by the trustees of the late Mr. James Holden, who left nearly a quarter of a million for charitable purposes, to the special fund which is being raised to extend the Rochdale Infirmary as a permanent memorial of the town's jubilee of incorporation. This is in addition to other large sums given by the trustees to the infirmary, and brings up the extension fund to nearly £20,000. As regards the jubilee itself, the chief interest, medically, lies in a comparison of the sanitary condition of the town at the present day, and at the time of incorporation. The population has grown from about 33 000 to 86 390, the increase being partly due to two extensions of territory. About 1856 the birth-rate averaged 34·5 per 1000, and has gradually fallen, almost year by year, to its present low rate of 23·2. In the old borough the death-rate was 23·4, and it gradually increased till it reached 27·0 per 1000. With the increased area given by the extension in 1872 the rate began to fall till it is now 16·7. During the 50 years the reduction in the death-rate has been 6·7 per 1000, compared with 6·0 for England and Wales. These figures are taken from an interesting chapter supplied by Dr. J. Henry, the medical officer of health, to the volume giving the history of Rochdale and marking its jubilee. Dr. Henry attributes the improvement to better sanitary provisions, greater knowledge of true cleanliness, the extension of the borough and diminished density of population, the many Factory and Workshop Acts dealing with steam, temperature, ventilation, &c., and the adoption of improved closet systems. Many years ago the town was distinguished by the very general adoption of dry closets.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Atkinson, E. L., M.R.C.S., L.R.C.P., has been appointed Senior Obstetric House Physician at St. Thomas's Hospital.

Cann, F. J. H., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Dawlish District of the county of Devon.

Clarkson, F., M.B., B.S. Durh., has been appointed a Resident Assistant in the Ear Department at St. Thomas's Hospital.

Corner, S. G., M.B., Ch.B. Edin., has been appointed House Surgeon at the Essex and Colchester Hospital.

Derry, Bartholomew Gidley, L.R.C.P. Lond., M.R.C.S. Eng., has been re-appointed Medical Officer of Health for Bodmin (Cornwall).

Dodgson, George Stanley, M.B., B.C. Camb., has been appointed Medical Officer to the Sherburn Hospital, near Durham.

Eckenstein, K. E., M.R.C.S., L.R.C.P., has been appointed a Resident Assistant in the Children's Surgical Department at St. Thomas's Hospital.

Eyre, C. R. B., M.R.C.S., L.R.C.P., has been appointed Junior Obstetric House Physician at St. Thomas's Hospital.

Flitcroft, Thomas E., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Resident Medical Officer at the Warrington Union Infirmary.

Gotelee, H. E., M.R.C.S., L.R.C.P., has been appointed Senior Ophthalmic House Surgeon at St. Thomas's Hospital.

Gray, H. T., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed a Resident Assistant in the Throat Department at St. Thomas's Hospital.

Jeffrey, G. Rutherford, M.B., Ch.B., has been appointed Senior Assistant Physician to the Crichton Royal Institution, Dumfries.

Maclean, I. C., M.R.C.S., L.R.C.P., has been appointed a Resident Assistant in the Children's Surgical Department and also in the X Ray Department at St. Thomas's Hospital.

Roberts, R. J., L.R.C.P. & S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Corris District of the counties of Merioneth and Montgomery.

Thomas, A. H., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the West Drayton District of the county of Middlesex.

Treves, F. B., M.R.C.S., L.R.C.P., has been appointed a Resident Assistant in the Throat Department at St. Thomas's Hospital.

Wallace, J., M.R.C.S., L.R.C.P., has been appointed a Resident Assistant in the Skin Department at St. Thomas's Hospital.

Ward, W. C. A., M.R.C.S., L.R.C.P., has been appointed Junior Ophthalmic House Surgeon at St. Thomas's Hospital.

Webb, G. L., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed a Resident Assistant in the Skin Department at St. Thomas's Hospital.

Wilson, William Cheyne, M.D. Edin., has been appointed Honorary Physician to the Devon and Cornwall Certificated Industrial School for Girls, Plymouth.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Ayr District Asylum.—Senior and Junior Assistant Physicians, at £150 and £120 respectively per annum, with board, apartments, laundry, and attendance.

Bedford County Hospital.—House Physician. Salary £80 per annum, with apartments, board, and laundry. Also House Surgeon. Salary £100 per annum, with apartments, board, and laundry.

Birmingham Asylum, Rubery-hill.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, &c.

Bradford Royal Infirmary.—Medical Officer, unmarried. Salary £100 per annum, with board and residence.

Brighton, Sussex County Hospital.—Second House Surgeon, unmarried. Salary £60 per annum, with board, residence, and washing. Also House Surgeon, unmarried. Salary £100 per annum, with board and residence.

Bromyard Union.—Medical Officer.

Cancer Hospital, Fulham-road, London, S.W.—Senior House Surgeon. Salary £80 per annum.

Cardiff Union Workhouse.—Assistant Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, attendance, and washing.

Chorlton and Manchester Joint Colony for Epileptics, Langho, near Blackburn.—Resident Medical Officer. Salary £150 per annum, with board and residence.

Derwent Valley Water Board.—Medical Officer for Workmen's Village at Birchinlee.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—House Surgeon for six months. Honorarium of £25, with board, residence, &c. Also Medical Officer for six months. Salary at rate of £100 per annum.

Eccles and Patricroft Hospital.—House Surgeon, unmarried. Salary £70 per year, with board, residence, and washing.

Egyptian Government, Ministry of Education.—Professor of Midwifery and Gynæcology. Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

Enniskillen, Fermanagh County Infirmary.—House Surgeon. Salary £52 per annum.

Evelina Hospital for Sick Children, Southwark, S.E.—Clinical Assistants.

Exeter, Royal Devon and Exeter Hospital.—Assistant House Physician, unmarried. Salary £60 per annum, with board, lodging, and washing (no stimulants).

Great Northern Central Hospital, Holloway.—Pathologist and Curator. Salary £100 per annum. Also Senior House Physician, Senior House Surgeon, Junior House Physician, and two Junior House Surgeons. All for six months. Salaries of senior officers at rate of £60 per annum and of junior officers at rate of £30 per annum, with board, lodging, and washing.

Hastings, St. Leonards, and East Sussex Hospital.—House Surgeon, unmarried. Salary £75 per annum, with residence, board, and washing.

Hospital for Consumption and Diseases of the Chest, Brompton.—Physician. Also Resident House Physicians. Honorarium £25 for six months.

Huddersfield Infirmary.—Junior House Surgeon. Salary £50 per annum, with board, residence, and washing.

Leicester Infirmary.—Resident Surgical Dresser for six months. Honorarium £10 10s.

Liverpool Infirmary for Children.—House Surgeon. Salary £100 per annum, with board and lodging.

Lowestoft Hospital.—House Surgeon, unmarried. Salary at rate of £80 per annum, with board, lodging, and washing.

Manchester Education Committee.—Assistant Medical Officer. Salary £200 per annum.

Manchester, University of.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

Middlesbrough, North Riding Infirmary.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing.

Northampton General Hospital.—Assistant House Surgeon. Salary £50 a year, with apartments, board, washing, and attendance.

North-Eastern Hospital for Children, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

North-West London Hospital, Kentish Town-road. — Second Honorary Anæsthetist.

Oldham Infirmary.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

Royal London Ophthalmic Hospital, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 a year, with board and residence.

St. Pancras and Northern Dispensary, 126, Euston-road.—Resident Medical Officer, unmarried. Salary £105, with residence and attendance.

Sheffield Royal Hospital.—Resident Medical Officer, unmarried. Salary £50 per annum, with board and lodging.

Sheffield Union Hospital.—Resident Medical Officer. Salary £100 per annum, with apartments, rations, and allowances.

Shrewsbury, Salop Infirmary.—House Physician for six months. Salary at rate of £50 per annum, with board and apartments. Also House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, with board and lodging.

West Bromwich District Hospital.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

West London Hospital, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

Colman.—On Sept. 8th, at Wimpole-street, W., the wife of W. S. Colman, M.D., F.R.C.P., of a son.

Houseman.—At Aberdeen, on Sept. 6th, the wife of Edward Houseman, M.B., B.C. Cantab., *East India* Railway, of a daughter.

McDougall.—On Sept. 5th, at Benloyal, Woodcote-road, Wallington, Surrey, the wife of William Stewart McDougall, *M.B., C.M., of a* daughter.

Mornement.—On Sept. 8th, at Eastney Barracks, Portsmouth, the wife of Staff-Surgeon R. H. Mornement, of a son.

Webb.—On Sept. 7th, at Northleach, the wife of Captain H. G. Stiles Webb, R.A.M.C., of a daughter.

Whitfield.—On Sept. 9th, at Bentinck-street, W., the wife of Arthur Whitfield, M.D., F.R.C.P., of a son.

MARRIAGES.

Geddes—Ross.—On Sept. 8th, at St. Mary's, Livingston, Staten Island, New York, A. Campbell Geddes, M.B., Ch.B., to Isabella Gamble, daughter of W. A. Ross.

Head—Roos.—On Sept. 6th, at St. John's Church, Croydon, Timothy John Head, M.R.C.S., L.R.C.P., to Florence Adelaide May, daughter of G. C. W. Roos.

DEATHS.

Adams.—On Sept. 6th, at Hove, James Adams, M.D., M.R.C.S., in his 77th year.

Barker.—On Sept. 3rd, at Aldeburgh, Suffolk, Gordon Campbell Barker, M.D., aged 40 years.

Smith.—On Sept. 5th, Leslie Ernest Maule Smith, M.R.C.S., L.R.C.P., aged 24 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

REFUSE IN THE STREETS.

On August 13th the following by-laws of the London County Council came into force:—

Waste paper, refuse, advertising bills, fruit rinds, broken glass, &c.

No person shall (1) sweep or otherwise remove from any shop, house, or vehicle into any street any waste paper, shavings, or other refuse, or being a costermonger, newsvendor, or other street trader, throw down and leave in any street any waste paper, shavings, or other refuse; (2) throw down and leave in any street, for the purpose of advertising, any bill, placard, or other substance; (3) throw down and leave in any street any bill, placard or other paper which shall have been torn off or removed from any bill-posting station.

No person shall deposit in any street or public place to the danger of any passenger, the rind of any orange banana, or other fruit, or the leaves or refuse of any vegetable.

No person shall throw, place, or leave any bottle or any broken glass, nail, or other sharp substance (not being road material) on or in any street or public place in such a position as to be likely to cause injury to passengers or animals or damage to property.

In these by-laws the expression "street" includes any highway, and any road, bridge, lane, path, footway, mews, square, court, alley, or passage to which the public have access for the time being.

Any person who shall offend against any of these by-laws shall be liable for each offence to a fine not exceeding 40*s*.

The by-laws made by the Council on May 12th, 1903, relative to the throwing down in streets of waste paper, refuse, advertising bills, broken glass, &c, are repealed as from the date on which the above by-laws come into force.

These by-laws are most excellent if only they are acted upon, but by-laws have a way of becoming ignored. There are still plenty of alternating electric light signs to be seen, despite a by-law of the County Council passed forbidding them some years ago; and the "Winner" yeller is still abroad in the land despite an edict of the County Council and of the Commissioner of Police. However, the above by-laws show a desire that the streets of London should be made less filthy. Piccadilly-circus is usually strewed with banana skins, posters of newspapers, omnibus tickets, and dirt of various kinds. A few arrests by the police and a few convictions with the full fine imposed by magistrates will presumably alter this state of affairs; but as yet the by-laws of the County Council appear to be only nominally in force.

THE INFECTIVITY OF TYPHOID FEVER.

To the Editors of The Lancet.

Sirs,—Can any of your readers inform me whether, and if so for how long, the bacillus typhosus is present in the excreta *after* convalescence has set in, and arising therefrom, and for what length of time, if at all, is it wise to disinfect the stools and urine after convalescence from typhoid fever is well established?

I am, Sirs, yours faithfully,

Sept. 10th, 1906. S.

PRINCIPALS, LOCUM-TENENTS, AND MEDICAL AGENTS.

To the Editors of The Lancet.

Sirs,—As an agent of 30 years' standing may I be permitted to enter my protest against "Retrospect's" condemnation of agents who do not charge "a uniform fee of half a guinea to each side." Your correspondent's experience appears to be limited to his engagements as locum during three years; allowing him, say, 20 engagements each year, it would give him 60 experiences as locum, and if he took a holiday every year during the 23 years he was a principal we can credit him with 23 experiences. Seeing that the medical profession numbers some 38 000 members, and that probably more than half these require a locum-tenent at least once a year, his experiences during 23 years represent but an infinitesimal proportion of the total. I have tried both systems, and before adopting the plan of not charging a fee to the principal I consulted many on the point and they were unanimous in the opinion that it seemed rather hard on those who were offering engagements at a fair salary to have to pay a fee, seeing that they could get what they wanted at their hospital, or by an advertisement in the medical papers, without going to an agent at all. A good locum-tenent, on the contrary, is only too glad to be kept in constant employment by his agent and pay a fair fee for each engagement. I have effected many thousands of such engagements, charging no fees to principals, and fees varying from 2*s*. 6*d*. to 10*s*. 6*d*. to locums, according to length of engagements (and in exceptional cases where the engagement is very long or at special fees a maximum fee of 21*s*.) I am glad to be able to assert that on an average I do not get one complaint a year from the locum-tenents as to the fee being excessive, nor do I find principals complain of the gentlemen supplied. The best proof of satisfaction is, perhaps, the fact that my locum-tenents hardly ever leave me, except to settle in practice, an that the same principals apply to me repeatedly for the same man as good a one as they had last time.

I am, Sirs, yours faithfully,

Percival Turner.

Adam-street, Adelphi, W.C., Sept. 11th, 1906.

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Adenoid.—An English medical man holding British qualifications i permitted to practise in Belgium without passing any examination but he is required to obtain the written permission of the Belgia Secretary of State for Home Affairs. With regard to France th foreign medical practitioner stands upon exactly the same footin as a French medical practitioner—i.e, he must pass exactly th same examinations as a native Frenchman who desires to practis medicine has to do, and no degree or diploma which he may posse is allowed for in any way, or will excuse him from any of th French examinations. Our correspondent will find full information as regards France at p. 629 of The Lancet of Sept. 1st.

Anonymous.—1. The wording of the deed of partnership, i.e., the clauses, if any, defining what work should and what should not be considered as coming under the partnership, will decide the matter. If the work in question cannot be brought under the clauses of the deed the point should be made a matter of friendly arrangement between A and B. 2. A and B should not demand fees. The patient should pay them to D on his return, when D should hand them over to A and B. If no fees are tendered D can send in his bill in the usual way and pay the amount over to A and B.

Noise.—Our correspondent will find the law as to nuisances and their abatement by public authorities laid down in Section 91 *et seq.* of the Public Health Act of 1875, but the case is probably more in the nature of a private wrong. We cannot express any opinion as to the legal points involved, in regard of which he is advised to consult a solicitor who can refer to cases in the authorised Law Reports and advise our correspondent as to his remedy (if any), which may be by application to the High Court for injunction. We know of no book on this subject.

Dunstable.—A private house need not be licensed for the reception of a single lunatic patient. Such a patient must, however, be received under the usual reception order and a report on his physical and mental health has to be sent within a month to the Commissioners in Lunacy as they may require. We are not aware whether the Commissioners give information readily to those intending to do as our correspondent proposes, but a letter to the secretary would bring information. A copy of the Lunacy Act, 1890, can be obtained through a bookseller.

Hirsutus (Medicus).—The substance mentioned is an active depilatory. It should be freshly prepared, as if kept it is not unlikely to oxidise into sulphate. If used in the form of paste it is just spread on the hairy skin. If in the form of powder it must be mixed into a cream with water. Caution is necessary in using it on delicate skins, for it is decidedly irritating. In general the hair may be easily rubbed off after two or three minutes.

Communications not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (19th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), West-minster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (20th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (22nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS &c.

MONDAY (17th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M.: Dr. S. E. Dore: Clinique. (Skin.)

TUESDAY (18th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. E. Squire: Clinique. (Medical.)

WEDNESDAY (19th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. P. L. Daniel: Clinique. (Surgical.)

THURSDAY (20th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22 Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

FRIDAY (21st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. E. Waggett. Clinique. (Ear.)

SATURDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat. Nose and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1906, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1906 are now ready. Bound in cloth, gilt lettered, price 18*s*., carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s*., by post 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.				TO THE COLONIES AND ABROAD.			
One Year	£1	12	6	One Year	£1	14	8
Six Months	0	16	3	Six Months	0	17	4
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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 13th, 1906.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain-fall.	Solar Radia in Vacuo	Maximum Temp Shade.	Min. Temp.	Wet Bulb.	Dry Bulb	Remarks.
Sept. 7	30·12	W.	...	114	75	64	62	65	Overcast
" 8	30·09	W.	...	117	79	58	59	62	Fine
" 9	30·22	N.W.	...	115	71	58	57	61	Fine
" 10	30·29	N.	...	110	65	53	51	55	Fine
" 11	30·35	S.E.	...	115	63	50	51	55	Fine
" 12	30·21	S.W.	...	102	69	54	57	60	Overcast
" 13	30·03	S.W.	...	101	67	59	53	63	Cloudy

During the week marked copies of the following newspapers have been received: *The Times, Scientific American, Wakefield Express, Dundee Courier, Macclesfield Courier, Glasgow Herald, Chatham Observer, The Irish Times, Bolton Chronicle, Western Mail (Cardiff), Newcastle Chronicle, Cork Constitution, Bristol Times, Literary Digest, Herts Mercury, Birkenhead News, Daily News, Rotherham Advertiser, &c.*

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A Lecture

ON

PHARYNGEAL ABSCESSES.

Delivered at the Hospital for Sick Children, Great Ormond-street, London, W.C.,

BY GEORGE E. WAUGH, B.A. CANTAB., M.D., B.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE HOSPITAL.

GENTLEMEN,—Abscesses in the pharynx are of perpetual interest on account of the difficulty in detecting their presence in the early stages of their formation, and of the danger which attends the failure to do so. Perhaps the fact that in very young children the symptoms are seldom referred directly to the site of the lesion is one reason why they are so frequently overlooked at the onset. Nor can the mother—who as a rule is an accurate observer and interpreter of the cause of symptoms of illness in her child—shed much light upon the trouble. She is generally deceived to the extent of completely, misinterpreting the symptoms in these cases and mistakes the reluctance of the child to swallow for "vomiting," "loss of appetite," "cough," "bronchitis," "teething," and many other disorders with which she is familiar. Such a history must have some slight tendency to prejudice the view that is taken of the case at the beginning, especially since many of the symptoms of a pharyngeal abscess in the earliest stage are common to it and these other disorders. In many cases the onset of some acute specific illness may be suspected—a suspicion rightly founded when the early symptoms are so frequently those of a toxæmia. To include a certain type of these abscesses in the list of acute specific disorders is at any rate an aid to the making of a differential diagnosis of great value to the patient, although it may not be a correct application of the term from the standpoint of pathology. But it is of far greater importance to remember that in the routine examination of a child who is obviously ill and in whom the symptoms and physical signs are ambiguous and not mutually explanatory an examination of the pharynx must be included. By such means only will the inflamed area in the pharynx be detected in its earliest stage. The extreme importance of this procedure lies in the fact that the best treatment of pharyngeal abscesses is to prevent them, and only by the application of suitable forms of treatment at this stage is prevention possible.

Pharyngeal abscesses may be divided into two classes, tuberculous and non-tuberculous, and the latter class may be subdivided into intra-pharyngeal abscesses and extra-pharyngeal abscesses according to the situation of the primary focus of infection either within the walls of the pharynx or outside of them.

1. *Tubercular pharyngeal abscesses.*—These are the only abscesses of the pharynx which arise in the middle line of the posterior wall of the pharynx and spread outwards. They are found in cases of tuberculous disease of the cervical vertebræ and their mode of onset is insidious. In consequence it is of great importance to examine the pharynx at regular intervals in these cases. Inspection alone is valueless and must be followed by palpation. If this procedure has been neglected an abscess may have attained considerable size before symptoms appear which compel attention to the pharynx. By this time superficial ulceration of the pharyngeal wall may have already begun and consequently the risk of a secondary infection being grafted upon a purely tuberculous lesion has been intensified. Dysphagia is generally the symptom that first appears but by the time that it has done so the abscess as a rule has already attained a considerable size.

The treatment must be carried out strictly on those surgical principles which govern the treatment of all tuberculous lesions and especially those in connexion with bone. The avoidance of all secondary infection is the predominant factor in determining a successful result, and therefore these abscesses must always be opened by an incision in the neck. The lining membrane must be removed methodically by a sharp spoon, not by haphazard scraping. Enlarged glands in the neck must be dissected out and the wound closed. A drainage-tube may be inserted for 24 hours. It is seldom one's fortune to be able to remove a sequestrum from the bodies of the vertebræ by these means. Only occasionally does it happen so and therefore the abscesses tend to recur. But by a repetition of these procedures at the earliest sign of recurrence a cure generally results.

2. *Non-tubercular abscesses.*—(*a*) Intra-pharyngeal abscesses of non-tuberculous origin and in which the primary site of the lesion is on the internal surface of the pharynx arise invariably as the result of some inflammatory affection of the tonsil. They have been described as arising spontaneously or as the result of trauma from swallowing some hard substance or from an infection in the post-pharyngeal tonsil or in lymphatic glands which lead a mythical existence upon the bodies of the cervical vertebræ. Further, they have been described as starting in the middle line of the posterior pharyngeal wall. The only kind of abscess that does start there is the tubercular one in association with caries of the spine. These others always start on the side wall of the pharynx immediately behind one posterior pillar of the fauces; they spread backwards along the lateral wall of the pharynx until they reach the posterior wall, when they spread inwards towards the middle line which they cross and sometimes spread round the opposite lateral wall of the pharynx until they nearly reach the other tonsil. But even in the case of the largest abscess it is generally possible to appreciate by means of the finger that on one side there is no groove between the tonsil and the abscess, whilst on the other side towards which the abscess is spreading there is generally a groove between the advancing edge of the abscess and the other tonsil. It is exceedingly rare for this class of abscess to point externally in the neck, since it is far easier for them to track round or in the pharyngeal wall and then bulge forwards into the cavity of the oral part of the pharynx. If a pharyngeal abscess points externally in the neck it almost always belongs to the class of extra-pharyngeal abscesses, in which the abscess has originated from a suppurating gland in the neck. These abscesses may be divided into stages according to the symptoms they cause. In the very earliest stage they give rise to no particular group of symptoms. They are then found to exist as small, hard, rounded swellings in the side wall of the pharynx immediately behind a posterior pillar of the fauces. They can easily be felt and very frequently can be seen. The tonsil immediately in front of them is slightly pushed forwards; there is no groove between it and the indurated swelling and the tonsil is generally hypertrophied and ulcerated. They will only be discovered at this stage as the result of a routine examination of a child who is ill and in whom the cause of the illness is obscure—an obscurity which is frequently illuminated by careful examination of the pharynx. It is at this stage that their further development may be arrested by appropriate treatment. In the next stage the group of symptoms indicate, as a rule, that the site of the lesion is in the pharynx. The child has a characteristic "muffled cry," he is frequently soaked by saliva which he dribbles rather than suffer pain from swallowing it, and the head is thrown back so that the opening of the larynx shall not be occluded by the abscess in the forward position. He has an obvious difficulty in swallowing, which the mother may describe as "vomiting," or even "coughing," and the profuse salivation often leads her to suspect "teething." There are, as a rule, no enlarged glands in the neck, or the enlargement is only a slight one. Finally the abscess can be both felt and seen—at this stage it is a tense elastic swelling. As the swelling increases in size the third stage is reached which is characterised by all the signs and symptoms of obstructive dyspnœa. It is in this stage that the condition has been mistaken for diphtheria with laryngeal involvement, tracheotomy has been performed without any relief to the symptoms, and a fatal issue has speedily ensued. Such a mistake can only be avoided by adhering rigidly to the rule of examining the pharynx with the finger in all cases of obstructive dyspnœa. Inspection of the pharynx is difficult in small children and even when membrane can be seen on the tonsils it is necessary to exclude the presence of a pharyngeal abscess by palpation, since it can co-exist with diphtheria and may not infrequently be found to be present in an early stage of formation. In obstructive dyspnœa caused by a pharyngeal abscess "stridor" and "croup" are not generally present. These are valuable signs for differentiating the condition from laryngeal diphtheria.

(*b*) When the deep lymphatic glands of the neck are enlarged under certain conditions they push the side wall of the pharynx inwards. If the gland which is nearest to the pharyngeal wall has already broken down it will form a tense, rounded, elastic swelling bulging into the oral part of the pharynx. It has, therefore, all the appearances of a pharyngeal abscess, but from its mode of origin it is extra-pharyngeal. (The glands in the neck may have enlarged as the result of a purely tuberculous infection, but as a rule the infection is a mixed one and therefore this type of abscess is not classed with those arising from caries of the spine.) It is clear from the mode of its formation that it must always be preceded by an enlargement of glands in the neck, which has persisted for some considerable time. It ought to be detected as the result of a routine examination of the pharynx before it has had time to give rise to characteristic pharyngeal symptoms. Evidence of softening of enlarged glands in the neck is always carefully watched for in those glands immediately underlying the skin. It is of equal importance to watch for it in those glands which lie close to the wall of the pharynx.

The most satisfactory treatment of intra-pharyngeal abscesses is to prevent their formation. This can only be done when they are detected in the first stage of their formation as a small indurated mass behind a posterior pillar of the fauces. The throat must then be syringed at short intervals with an alkaline lotion and the ulcerated surface of the tonsil painted with a solution of salol in glycerine, or with compound tincture of benzoin, or with any of the usual applications for inflammatory conditions of the throat. A mixture containing chlorate of potassium and salicylate of sodium given every few hours further aids in keeping the mouth and throat clean. The patient must be kept upon a strictly fluid diet. In many cases the adoption of these measures leads to the disappearance of the indurated mass within five or seven days. As soon as all signs of acute inflammation have disappeared the tonsils must be removed completely by enucleation and so the future formation of an intra-pharyngeal abscess rendered practically impossible. In several hundreds of cases in which this procedure has been adopted so far no case has appeared again with an intra-pharyngeal abscess, whilst in those in which an abscess had already formed before they came under my observation there was not one from which the tonsils had been previously removed.

When an abscess has already formed immediate operation is the only treatment. The consideration as to whether the abscess is of intra-pharyngeal or extra-pharyngeal origin will determine the controversy as to whether it should be opened through the neck or through the mouth. No one would seriously advocate the opening of a quinsy through the neck nor would they advocate the evulsion of enlarged glands from the neck through an opening in the mouth.

Intra-pharyngeal abscesses can only be successfully treated by an incision made through the inner wall of the pharynx and extra-pharyngeal abscesses by an operation through the neck. In the former case an anæsthetic must be given unless the patient is already moribund from obstructive dyspnœa. A sand-bag must be placed under the shoulders so that the head falls backwards sufficiently to form an inclined plane down which the pus can travel towards the naso-pharynx and yet does not form so great an inclination as to cause a congestion of the pharyngeal plexuses of veins. A guarded scalpel must be used and with the index finger of the left hand as a guide an incision must be made extending over the whole length of the abscess cavity. Unless this is done a pocket will be left at the lower end which cannot be drained properly and will be a fruitful source of future complications. If the abscess is very large it is impossible to make the incision along the whole length of it by one cut. The pus must be evacuated through a small opening, so that the tumour partially collapses, and then the incision can be extended to its proper length. The operator must stand behind the patient's head and the direction of the cut must be from below upwards. The most suitable after-treatment for these cases is to syringe the back of the throat frequently with an alkaline lotion, keep the patient on liquid food, and give a mixture containing chlorate of potassium and salicylate of sodium. Most cases are quite well within from five to seven days after the operation.

An extra-pharyngeal abscess must be opened externally through the neck. The operation to be successful involves the complete removal of all the enlarged glands and from the position of the abscess these have generally to be removed before the abscess is reached. The direction of incision must be so planned that all the glands from the anterior and posterior triangles of the neck can be removed if necessary. When the abscess has been opened the cavity must be dissected away from the surrounding structures as far as possible and when dissection is impossible the lining membrane must be carefully removed by a sharp spoon. After well washing with a sterilised saline solution the wound in the neck must be stitched up. A small drainage-tube may be inserted with advantage for 24 hours. In nearly all cases if the infected glands have been adequately removed healing takes place by first intention.

These methods have been applied to 25 cases of pharyngeal abscesses, excluding those arising from caries of the spine. In this series there was one death. The child was moribund from obstructive dyspnœa when admitted to the hospital and died from sudden syncope on the operation table. The remaining 24 cases have all been discharged well, those suffering from an intra-pharyngeal abscess within about a week from the date of operation and those suffering from an extra-pharyngeal abscess within about a fortnight from the date of operation. There has not been a single instance among them of those dreaded complications—septic pneumonia, septic mediastinitis, bronchitis, or a fistula in the neck. Such complications probably arise from failure to recognise the type of abscess in each case and therefore the appropriate site of operation is not chosen.

OBSERVATIONS ON THE ARTERIAL BLOOD PRESSURE IN HEART DISEASE.

BY HUBERT J. STARLING, M.D. LOND., D.P.H. CANTAB.

WHATEVER the prime lesion may be, the morbid effects of heart disease must be ascribed to failure of the heart pump—i.e., to a deviation from the normal of the mechanical conditions of the circulation. Since of these conditions the arterial blood pressure is the most important, all the complex reactive mechanisms being devoted to its maintenance, it is curious that few observations have been made on the state of the arterial blood pressure in cases of failure of compensation in heart disease. The only work on the subject with which I am acquainted is *Clinical Observations on Arterial Blood Pressure*,[1] and so far as I am aware no connected study of the whole subject has yet been made. The scattered observations which I have to bring forward in this paper may therefore serve as a stimulus to other inquiries in the same subject and may induce others to use the determination of arterial pressure as a means of diagnosis and probably a guide for treatment in cardiac disorders.

The classical signs of failure of compensation in heart disease include feeble or irregular pulse, low arterial tension, high venous pressure with backward effects leading to disorders of the abdominal viscera, and the production of œdema or ascites. When with these accepted signs of failure of compensation in man we attempt to imitate the conditions experimentally we are met at once by the difficulty, on which Cohnheim laid so much stress, of producing similar conditions in animals. It would seen simple to imitate aortic stenosis by partial ligature of the aorta. Cohnheim pointed out that the compensatory power of the heart muscle was so complete that such a ligature produced no effects whatever on the arterial pressure, the ventricles simply contracting with increased force in order to maintain the arterial pressure at its normal level. If the arterial stenosis were still further increased the heart, after one or two ineffective beats, would fail altogether. The rule in the heart appeared to be normal arterial pressure or no circulation at all. Owing to the impossibility of producing, by damage to the valves or by constriction of the arterial orifices, a condition of things which could be regarded as analogous to failure of compensation in heart disease, Cohnheim had recourse to the device of hampering the diastole of the heart by injection of oil into the pericardium.

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[1] R. R. Stawell: International Medical Journal of Australasia, vol. x., No. 7.

This method was also used by E. H. Starling,[1] who studied the changes thereby induced both on arterial and venous pressures and showed that the result of such interference, so long as the pericardial distension allowed any circulation to occur at all resulted in a lowering of the arterial pressure and a rise of pressure in the great veins near the heart, including those of the liver. In the limbs, however, there was a fall both of venous and capillary pressures, so that it was impossible to account for the mechanical production of œdema by simple mechanical interference with the pumping action of the heart.

A study of the arterial pressure in cases of failure of compensation in man shows that there is no analogy between such cases and the case studied by Cohnheim. The injection of oil into the pericardium may be used as a means of study of the circulatory conditions in pericardial effusion, but has no bearing on cases of heart disease due to lesions of the valves or secondary to arterial conditions. In these the conditions are much more complex. Interference with the pumping action of the heart induces a whole cycle of consecutive changes, many of which are reactive in character and adapted to the neutralisation of the effects of the heart failure itself and which involve a number of different organs.

Methods.—I have used throughout this series of observations Dr. C. J. Martin's modification of the Riva Rocci manometer. This is extremely simple in design and the methods of its use are easily acquired. In regard to observations on individuals not confined to bed I have made them rest in a sitting posture for from five to ten minutes before taking their blood pressure and nearly all the observations of this series were taken between 10 A.M. and 1 P.M. The arm which is being utilised is kept at rest on a table which brings it nearly to the level of the patient's heart. In the case of those confined to bed I have endeavoured as far as possible to take the successive observations at the same time and under exactly similar conditions on each occasion. For instance, since I prefer to have the arm bare which I am going to employ the patient removes his jacket and slips up the vest and shirt and then rests for five minutes to get over any exertion entailed in this process. I find that on the first occasion of estimation it is best to repeat the process of observation some three or four times until two successive readings are more or less identical. I take the last reading as correct when the patient's excitement or timidity has subsided. It is essential that the arm should rest in a comfortable position, as any muscular contraction tends to increase the resistance offered to the obliterating force and consequently gives a wrong estimation. Where observations are being taken on a case of intermittent or irregular heart I have always taken the maximal beat as being the true indication of the force against which the heart has to work; the intervening beats which fail to "come through" I regard as evidence of incompetence. It sometimes occurs that the obliterating pressure observed as the air is being pumped into the apparatus does not coincide with the pressure at which the pulse is again perceptible when the air is allowed to escape, and in this case I take the mean of the two observations as the estimation of the maximal blood pressure.

The arterial pressure in normal individuals.—Before we can draw any conclusions from observations in cases of heart disease we must have some idea of the variations of pressure which can be regarded as normal at any given age. I have been able to obtain information on this point from a series of observations made by Dr. Martin, the results of which he kindly placed at my disposal, from the paper by Stawell, as well as from observations made by myself on a number of normal individuals, as well as on others in whom there was no circulatory disorder. Up to 40 years of age the normal systolic pressure of a patient sitting quietly and free from any emotion may vary from 100 to 120 millimetres of mercury. This pressure can be markedly increased as the result of exertion, by rigidity of the muscles, or by excitement, any of which may raise the pressure 20 to 30 millimetres of mercury. It is therefore important to insure that such disturbing factors are absent in taking the arterial blood pressure in cases of disease. With increasing age above 40 years there appears to be increasing height of arterial pressure and in extreme old age we may observe pressures as high as 200 millimetres of mercury or more. Since, however, one of the most frequent causes of death in old people is by rupture of arteries or by heart failure, it is difficult to be certain how great a rise of pressure we should regard as normal and whether, indeed, under the most favourable conditions it might not be possible to maintain throughout life an arterial pressure corresponding to that which is normal for the young adult. In a few cases at any rate in old people I have observed pressures differing but little from that found in younger patients. A few of these might be quoted here. The blood pressure averages I have estimated are as follows: From 15 to 40 years, 119·3 millimetres of mercury; from 41 to 60 years, 141·7 millimetres of mercury; 61 years and over, 154·8 millimetres of mercury. A few striking examples of advancing age with little increase of blood pressure are: 1. C——, aged 60 years; robust old fellow; blood pressure 118. 2. E——, aged 46 years; healthy and robust; blood pressure (*a*) 128, (*b*) 122·5. 3. A——, aged 56 years; robust but dyspeptic; blood pressure 131. 4. L——, aged 47 years; healthy, not vigorous; blood pressure 120. 5. C——, aged 71 years; well-nourished old man; blood pressure 142. 6. S——, aged 77 years; robust old fellow; blood pressure 138.

Whether or not we regard a rise of pressure as a necessary concomitant of advancing age it is extremely difficult to make an average blood pressure for each age, owing to the increasing frequency among our cases at advancing ages of cases with an abnormally high arterial tension in whom sooner or later this raised tension will give rise to injurious effects. Professor T. Clifford Allbutt has already drawn attention to the importance of this class of case and I shall have to deal more fully with it in a later part of my paper.

The blood pressure in heart disease.—Perhaps the most striking fact which has resulted from my determinations is that, however bad the patient, however ineffective the work of the heart pump, in no case of heart disease ordinarily so called have I ever found an arterial pressure below normal. In the diseased man, as in the healthy experimental animal, the adaptive mechanism of the circulatory system is directed to the maintenance of a normal arterial pressure, and this will only fail when the heart is unable to beat any more—i.e., here, as in experiments on animals, the heart maintains the normal pressure or stops beating altogether.

The cases of heart disease proper—i.e., those in which there has been some lesion of the auricular, ventricular, or arterial orifices—may be divided into two main classes. Class I., those in which the arterial pressure is normal (from 100 to 125 millimetres of mercury); Class II., those in which the arterial pressure is considerably above normal (from 130 to 280 millimetres of mercury). As we shall see, both classes involve lesions either of the aortic, mitral, or tricuspid orifices. They differ, however, considerably in their etiology and therefore in the indications for their proper treatment.

Class I.—This class includes all kinds of heart lesions. In every case except one, however, it will be noticed that there was a history of an antecedent attack of rheumatism, which can be regarded as the prime cause of the heart disease. I give here a short account of some of these cases.

CASE A.—A female, aged 29 years, married. She had had acute rheumatism at 25 years. She had had three children, the last being born at sixth month of pregnancy, five months before admission to hospital. On admission she had to sit up in bed and was very dyspnœic; she was very anæmic. Heart enlarged; at apex a presystolic murmur and hard first sound could be heard; over aortic area a well marked systolic murmur could be heard. No œdema or ascites. Blood pressure from 106 to 122 millimetres of mercury; approximated chiefly to latter figure towards the end of her stay in hospital. Diagnosis: mitral stenosis, probably aortic stenosis.

CASE B.—A female, aged 19 years; single. She had had rheumatic fever at 13 years. She was "quite well" except for a bad cough until a fortnight before [illegible] lesion she was a thin anæmic girl, dyspnœa [illegible] ites or œdema. Apex beat was external to [illegible] interval which was chiefly occupied by a presystolic murmur which ended in sharp first sound. Blood pressure was from 100 to 112 millimetres of mercury; no change during rest in bed. Diagnosis: mitral stenosis.

CASE C.—A female, aged 19 years, single. She had had chorea at five years and rheumatism at ten years of age. On admission she was dyspnœic, cyanosed, orthopnœic; had signs of backward pressure in lungs. The apex beat was in sixth intercostal space two inches external to the nipple, diffuse impulse over cardiac area and in epigastrium. Mitral systolic and presystolic bruits could be heard; pulse very irregular. Blood pressure was from 96 to 105 millimetres of mercury; no variation with treatment. Diagnosis: mitral stenosis and incompetence.

CASE D.—A female, aged 50 years. No history of rheumatism could be obtained. On admission she had passed only two ounces of urine during previous 24 hours. She was a fat, congested looking woman with much œdema of back, some œdema of legs, was somewhat cyanosed, and had a "mitral" character of facies. Heart beat feeble; apex beat could not be located; a systolic bruit could be heard over apex area. Blood pressure on admission was 104 millimetres of mercury; after ten days of a diuretic pill containing squill, digitalis, and mercury the blood pressure had risen to 150 millimetres of mercury, while the pulse had fallen from 120 to 80 per minute. The urine output during this time increased from under 5 ounces to over 50 ounces in the 24 hours. *On the tenth day*, when the patient was considerably improved, the diuretic pill was omitted and *the blood pressure sank to* 118 millimetres of mercury, where it remained until the patient's discharge from hospital, greatly benefited by rest and treatment. Diagnosis: mitral stenosis and *regurgitation* with suppression of urine.

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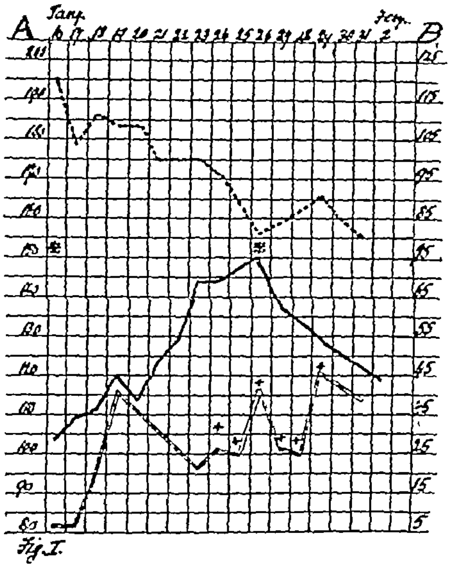
[1] Arris and Gale Lectures, THE LANCET, Feb. 27th and March 6th and 13th, 1897.

FIG. 1.



Case D, Class I., mitral regurgitation and stenosis. From * to * patient received pilula diuretica three times a day. The urine contained *no albumin*. The + signs show where some urine has been lost and the estimate is therefore lower than the correct amount. The numbers in Column A refer to the *blood pressure in millimetres of mercury*. The numbers in Column B refer to the amount of urine in ounces per diem and the pulse-rate per minute.

(N.B.—In all the charts the figures on the right-hand side of the page denote *urine in ounces per diem* and *pulse per minute*. *The figures on* the left-hand side denote blood pressure in millimetres of mercury. - - - - - - = Pulse. ———— = Blood pressure. ═════ = Urine.)

CASE E.—A male, aged 44 years, was in hospital ten years ago for aortic incompetence, and since that time had been at his regular work. He was in the boot trade, work which necessitated standing up all day and was situated up three flights of stairs. Gave up work 14 days before admission. On admission he was a well built man; he could lie nearly flat in bed without inconvenience; had a little dyspnœa and a little œdema of the legs. "To and-fro" aortic murmurs could be heard over aortic area and were transmitted down to the apex. Capillary pulsation was well marked. Blood pressure was from *122 to 136 millimetres of mercury*; pulse was 64. Diagnosis: aortic stenosis and incompetence.

Discussion of cases.—In some of these cases the heart failure was limited to the left side, so that its chief result was increased distension of the lung vessels and the consequent interference with the respiratory functions (dyspnœa and cyanosis). In others, however, the failure has extended to the right side so that there was a rise of pressure in the systemic veins and signs of backward pressure in the liver with the production of ascites and œdema. Can we form any idea of the sequence of events in such conditions? It must be remembered that the guiding factor in the circulation is the maintenance of a *normal arterial pressure*, since it is only in this way that the brain, the ruling tissue of the body, can *keep* itself supplied with the proper amount of oxygen. A temporary failure of the heart to send the proper amount of blood to the brain, whether due to abnormal reflux through the mitral valves or to an abnormal obstacle to the emptying of the left auricle, is at once followed by efforts on the *part of the* vaso-motor system to remedy the deficiency. The first result is, therefore, a constriction of all the vessels in the body, especially *those* of the splanchnic area, and as a result a rise of venous pressure and therefore of pressure in the guiding cavities of the heart—namely, the venous orifices and the auricles. The greater tension on these cavities causes increased contraction and therefore tends to restore the ventricular output to *its previous* amount. The splanchnic constriction, as E. H. Starling showed, must lead *to increased* up-take of fluids from the alimentary canal and therefore finally *to an increased volume* of fluid in the circulation. The inadequate heart muscle has to be stimulated to further activity by increased *stretching* and this stretching is attained by an increased *fulness of the venous* system, which, as the inadequacy of the heart muscle progresses, must proceed backwards from heart to veins and finally, perhaps, even to the limb capillaries. The fact that in cases such as Case D, Class I., there was *normal arterial* pressure with increased venous pressures shows that *the system* must have been over-full—i.e., that there was a plethora. *It* is worth noting that this plethora has been actually found by Houston in certain cases of uncompensated heart disease. Unfortunately, *in these cases* no measurement was made of the arterial pressure. The existence of a condition of plethora in these cases indicates that more stress may be laid upon the mechanical conditions in the production of dropsical heart disease than was imagined by E. H. Starling, though there is no doubt that the *effect* of a *high* capillary pressure must be aided in these cases by the *malnutrition* of the capillary wall consequent on its *defective blood-supply*. For although the arterial pressure is maintained at *the normal level the system* itself does not succeed in achieving a normal circulation, since the high venous pressure will tend to diminish the gradient of pressures from arteries to veins, and the constricted condition of the arterioles will lessen the rapidity of flow through the capillaries. The directing factor in the whole cycle of events is the need of the brain for a normal oxygen supply. The venous pressure being raised the normal *circulation* through the brain *could* not be attained by simply *keeping the arterial pressure* at the normal *amount*. The patient therefore *instinctively* lowers the venous pressure in the vessels, which lead the blood away from the brain, by assuming an erect position, so that the return of blood from the brain may be aided by the influence of gravity, and the high venous pressure only makes itself felt in the dependent portions of the body. This is the reason for the orthopnœa which *is* the common feature of cases of mitral disease.

Effects of deficient oxygenation.—If the orthopnœa *is not sufficient* to maintain the normal *supply* of oxygen *to brain*, as in cases where cyanosis *is well marked*, a new series of events come into play. In the first place we have the original asphyxial excitation of the vaso-motor centre and therefore a rise of arterial pressure above normal. *The* heart, which could not carry out effectively its normal work, is thus called upon to do an amount of work which is very much greater than normal, a condition of things which must evidently *lead to* rapid *exacerbation* of the *disorder* and result *finally in total failure of* the circulation. In such cases, therefore, *we may* find a pressure of 130 to 140 millimetres of mercury in the arteries, although we are not justified in placing the case with the other cases which I deal with in Class II. The temporary asphyxial nature of the raised pressure is at once seen in such cases if, by rest or by the administration of digitalis or by bleeding, we are able to restore to some degree the functions of the heart. In such a case the first *improvement in the heart's* action is shown not only by diminished *cyanosis* but by a *fall* in the arterial blood pressure. The effect of asphyxia in causing a temporary rise of blood pressure is shown very strikingly in cases of asthma. I may here quote the particulars of one such case.

Class III. (special case)—A female, aged 63 years; admitted on Sept. 27th, 1905. For seven years she had had *frequent attacks of* asthma. *On admission she* was a *small*, *very* thin, and *scraggy* woman; she sat bolt upright in bed and had great respiratory distress. Had a typical attack of bronchial asthma and was very *cyanosed*. *Progress and treatment*: *On* Sept. 28th there was no albumin in urine; respirations 28 per minute. Blood pressure was 188 millimetres of mercury. On the 29th, inhalation of *ethyl iodide* had no effect on *blood pressure* and *afforded no relief to the distress*. Blood pressure was 180 millimetres of mercury. Two minims of morphine were injected hypodermically at 9 P.M. Three minims of pinol were *given every four hours, and 10 minims of potassium* iodide, 10 minims of tincture of stramonium, and half a drachm of spirit of ether three times a day. On the 30th she was much easier and had slept the *previous night*. *Blood pressure* was 148 *millimetres of mercury*. On Oct. 2nd she was progressing well, lay flatter in bed and breathed *more* easily. Cyanosis was disappearing. Blood pressure was 118 millimetres of *mercury*. On the 3rd *blood pressure* was 112. Patient was discharged on Oct. 10th cured of the attack.

Even in *those cases* where a barely adequate supply of *oxygen to the respiratory* centre is assured by position or other regulative mechanism, a deficient circulation through the rest of the body will involve a deficient oxygenation. The blood as it circulates through all organs of the body,

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FIG. 1.

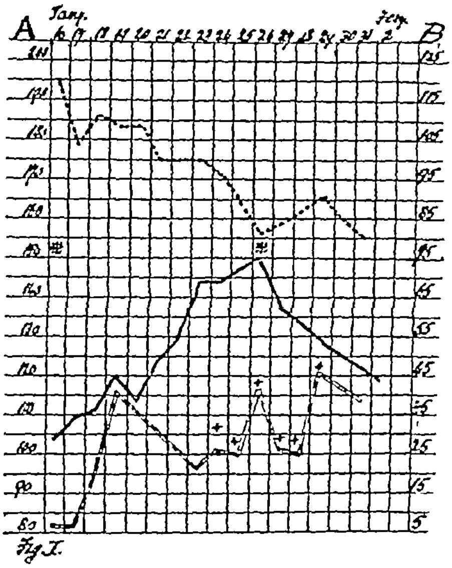

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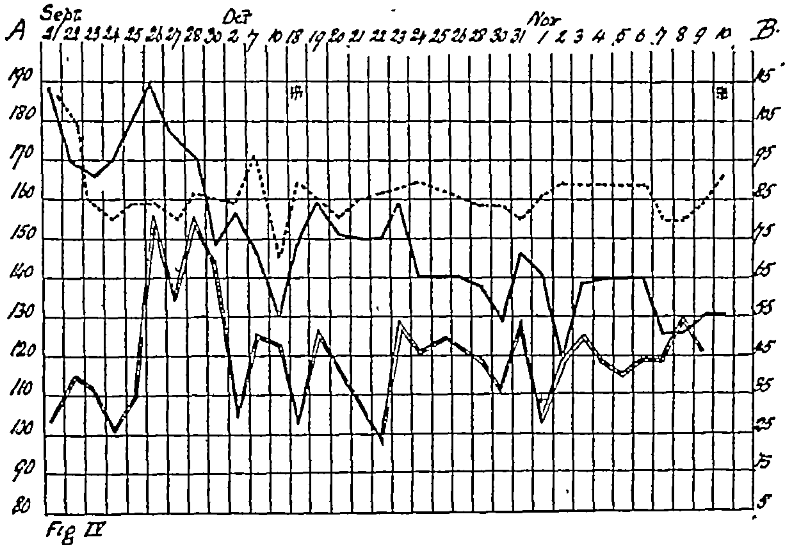
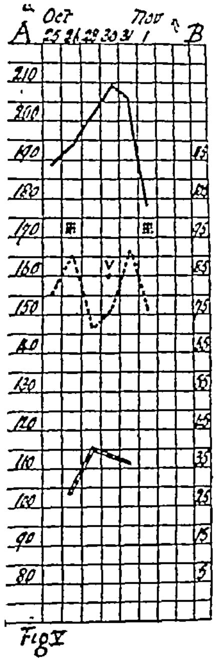
FIG. 4



Case G, Class II.—Primary kidney; secondary cardiac lesions. From * to * one minim of liquor trinitrini three times a day, increased to two minims three times a day after one week. The numbers in column A refer to the blood pressure in millimetres of mercury. The numbers in column B refer to the amount of urine in ounces per diem and pulse-rate per minute.

FIG. 5.



Case H, Class II.—Primary kidney. Secondary heart. From * to * one minim of liquor trinitrini was given every four hours. V, blood pressure after venesection (12 ounces were removed) The numbers in column A refer to the blood pressure in millimetres of mercury. The numbers in column B refer to the amount of urine in ounces per diem and rate of pulse per minute.

CASE E.—A man, aged 56 years. He was at work until three weeks before admission. No history of rheumatism; alcoholic history uncertain. On admission on August 12th, 1905, he was a large strongly built man; dyspnœic; very irregular pulse; heart much enlarged with many bruits; slight œdema of legs. He was discharged improved on Sept. 8th but readmitted on Oct. 15th, having been back to work. He had œdema of legs, ascites, very intermittent and irregular pulse, and was very dyspnœic. A trace of albumin was in the urine. Discharged on Nov. 11th improved. Diagnosis: mitral and aortic incompetence. The blood pressure in this case was 120 millimetres of mercury on admission, when the heart was obviously unable to carry out the task required of it. After three days' administration of diuretic pills (containing squill, mercury, and digitalis), the blood pressure rose to 170 millimetres of mercury, and kept between this level and 160 millimetres until the pill was discontinued, when it sank to 140 millimetres, where it remained until patient's discharge.

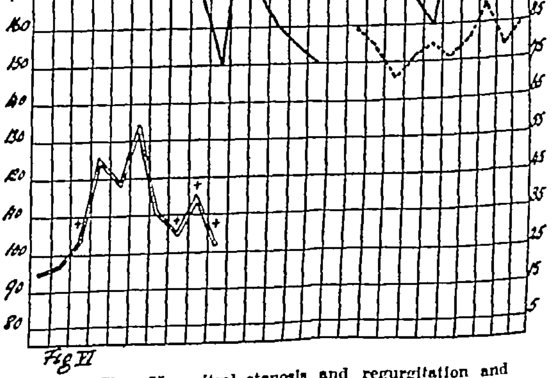
CASE F.—A man, aged 60 years. No history of rheumatism; he had been addicted to alcohol; he had had an attack of hemiplegia two and a half years ago from which he recovered after three months. On admission he was a stout flabby man, very cyanosed, and dyspnœic; he had much œdema of face, trunk, and limbs, marked ascites, and an enlarged prostate which had given him difficulty in micturition for some time past. Heart: apex beat heaving, irregular, external to nipple; loud systolic apical murmur and an aortic diastolic. Very little progress was made and the patient died after getting into a general pyæmic condition two months after admission.

CASE G.—A female, aged 41 years. No history of rheumatism; she had had dyspnœa for past two years. She had had five children (two dead) and was very bad during last pregnancy (youngest child was 15 months old). She had been getting worse lately and unable to do her work. On admission she was a thin, sallow woman; she lay in a semi-prone position; slight occasional hæmoptysis; some œdema of legs. Apex beat was in sixth space below nipple. Had reduplicated second sound over pulmonary area; loud systolic bruit over sternum at level of third costal cartilage and laboured first sound at apex. These sounds changed to definite presystolic and sharp loud first sound at apex, systolic bruit over tricuspid area, and systolic bruit over third right costal cartilages. Aortic second sound was soft. Some albumin in urine. Patient was discharged after seven weeks in hospital greatly improved in condition and with no albumin in the urine. Diagnosis: aortic stenosis, slight regurgitation; mitral stenosis, tricuspid regurgitation.

CASE H.—A female, aged 65 years. She was quite well up to 5 P.M. on the day of admission, when she was found clinging to a chair for support, and her friends noticed that her right side was paralysed. Very alcoholic history. On admission there was no loss of consciousness. Slight movement was obtainable in the right side, arm, and leg, but there was paralysis of the right side. Heart large; impulse in fifth space external to nipple, heaving in character; soft systolic bruit at apex. Hard second sound over aortic and pulmonary areas. Vessels hard and tortuous. Urine loaded with albumin. Patient insisted on leaving hospital against advice.

CASE J.—A male, aged 72 years. He was a hard drinker some years ago but since then had been a temperance lecturer and evangelist. He had suffered from dyspnœa for 18 months past. On admission on Jan. 16th he was a thin, wiry man, very dyspnœic; some œdema of legs. Pulse was very rapid and intermittent. Systolic and presystolic murmurs at apex. Radial artery very tortuous and hard. Large right pleural effusion. Patient was aspirated (right chest) three times when in hospital and was discharged after a stay of six weeks, somewhat relieved. After a fortnight he was readmitted in a much worse condition on Feb. 28th. He remained in hospital and was again aspirated and was discharged relieved on March 29th.

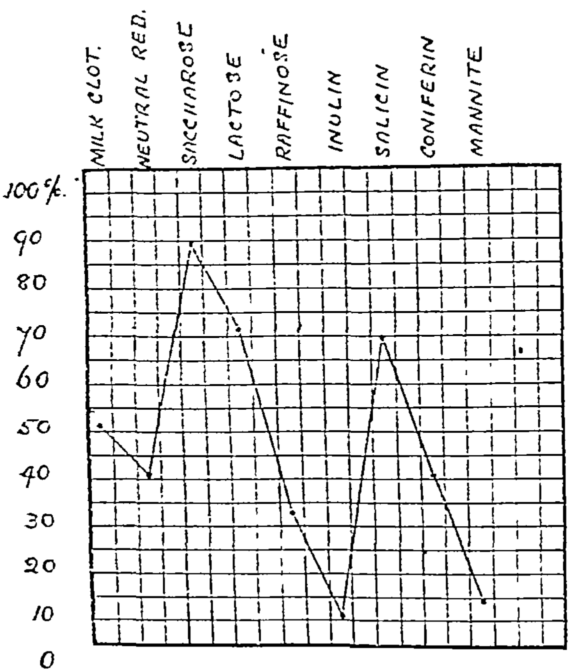
FIG. 6.



Case J, Class II., mitral stenosis and regurgitation and arterio-sclerosis. The figures under column A refer to the blood pressure in millimetres of mercury. The figures in column B refer to the amount of urine in ounces per diem and rate of pulse per minute. The + signs show where some of the urine has been lost and therefore the amount is under-estimated.

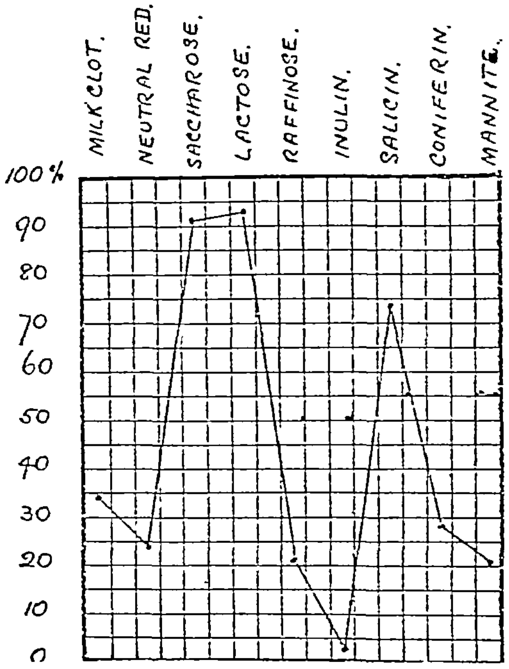
It will be noticed that in these cases there is a preponderance of aortic disease, though this class is not entirely limited to such cases. What is the significance of the rise of arterial pressure in this large group? Since in these observations we are taking not the mean arterial pressure but the maximum systolic pressure, it might be thought that the rise in pressure was due to the inadequacy of the aortic valves. The presence of a backward leakage through the valves will cause, if pronounced, a more rapid diastolic fall of pressure and the increased volume of blood in the dilated left ventricle will occasion an increased output of the ventricle at

FIG. 2.



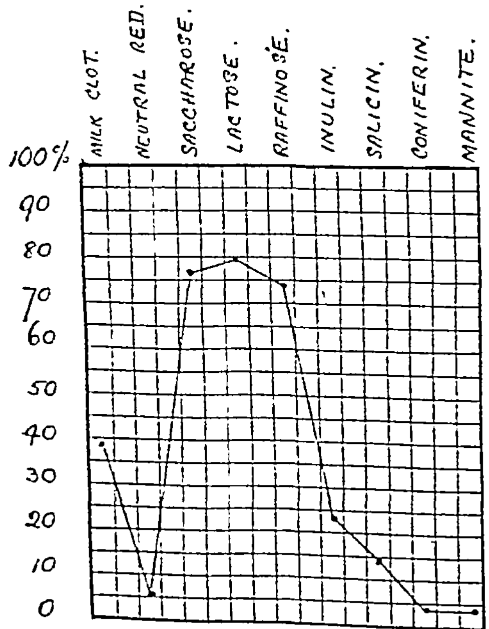
General reaction-curve of all streptococci (saprophytic and parasitic) excluding pneumococci. Based on 1087 colonies, mainly saprophytic. Only about 200 parasitic colonies are included.

FIG. 3.



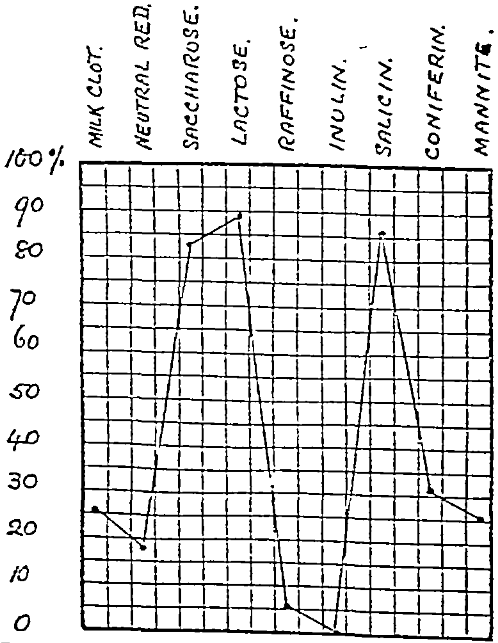
Reaction-curve of parasitic streptococci. Based on 100 cases of definitely streptococcal disease.

FIG. 4.



Reaction-curve of pneumococci. Based on 34 colonies of capsulated streptococci.

FIG. 5.



Reaction-curve of streptococci producing suppuration. Based on 35 colonies definitely associated with suppurative processes in man. Pneumococci are excluded.

212 grammes; total nitrogen, 34 grammes; total calories, 4016

The blood pressures of 18 patients were taken. Each one was made to rest for some minutes before observation reclining on a lounge chair or in bed, and several successive observations were made until the lowest possible reading was obtained with the following results: average age, 30·08 years; average blood pressure, 140·18 millimetres of mercury. As a control experiment the nurses and sisters were tested, including a somewhat anæmic subject whose abnormally high blood pressure was probably due to previous exertion, with the following result: average age, 28·8 years; average blood pressure, 129 6 millimetres of mercury. It must be noted that all these individuals pursued the same life as the patients—that is, in the open air night and day and probably had very hearty appetites. Of the patients the highest blood pressure was in the one referred to in the first instance who was progressing well and had gained 14 pounds in five weeks' treatment. It appeared to me suggestive that the examples of the highest blood pressure occurred in those patients who were clinically rapidly improving and had been under treatment the shortest time, that those who had been under treatment for a considerable time exhibited lower blood pressure, and, except for one instance, those who were not doing so well exhibited a blood pressure only a little above the normal range.

I think that these facts have a definite bearing on the question of blood pressure in relation to heart disease and I should also like to suggest that the enormous meat factor in the diet of athletes in training has had some considerable influence in multiplying the number of cases of "athletes' heart," cases which are either of an "incompetent aortic" nature or of the "dilated and hypertrophied heart" type. It would be interesting to compare the effects of severe training on the circulatory mechanism on the one hand of those training on the old type of diet and on the other hand of those who were on a "Chittenden diet."

Importance of blood pressure determination for treatment.—Whatever may be the etiology of the raised arterial tension in such cases the results I have brought forward will, I think, serve to demonstrate the great importance of a reading of arterial pressure in all cases in which we have to treat the cause of failing heart. It enables us in most cases at once to relegate the case to one of two classes. In the first class it is the heart muscle to which we have to direct the whole of our attention. If we bleed it is to relieve temporarily the distended right heart. If we give oxygen it is to improve the nutrition of the heart and to relieve it in cases of mal-oxygenation by relaxation of arterial spasm. If we give digitalis it is for its steadying and anabolic effects on the heart muscle. On the other hand, in the second class our first thought must be the reduction of the high pressure which has worn down the working power of the heart muscle. Bleeding in such cases would not only give a temporary relief to the heart. It would also, by affording a stimulus to building up of the tissue, enable the organism to apply its nitrogenous waste products to this purpose, and so tend to the purification of the circulating fluid. On the assumption that there is a plethora in the widest sense of the term and that it is primarily due to an excess of income over expenditure, the treatment which would seem to be indicated would run on the old-fashioned lines of bleeding and purging. At the same time there must be a complete reformation of mode of life. The income must be diminished by limitation of food; the output must be increased where necessary by regulated exercise. It is probably in cases such as these that Oertel's methods of treatment of heart disease have been most successful. Whether, however, limitation of fluids in the diet is desirable I am inclined to doubt. Although increased fluids tend to the perpetuation of the plethora present in these cases too rigid a restriction of fluid must seriously hinder the excretion of the hypothetic toxic substances which we have assumed to be the cause of the disorder.

These suggestions for treatment must be put forward at present only tentatively. Although I have Professor Allbutt's support in the recommendation of restriction of diet and exercise, the treatment is founded on what is at present only a hypothesis. Before this hypothesis can be established we must show that in patients, still in excellent health but with an abnormally high arterial pressure, it is possible to reduce this pressure to, say, 120 millimetres of mercury by exercise and restriction of diet without interfering with the physical well-being of the patient. Most of the cases which I have dealt with above are already too far gone for any hope of permanent alleviation and the treatment in these has had to be palliative rather than curative. By the use of nitrites it is possible to lower the pressure in some of these cases and sometimes to give some measure of relief to the heart and to the patient. In this mode of treatment, however, we are attacking the result, and not the cause, of the disease and cannot therefore expect any lasting benefits to result from our treatment.

These brief and somewhat disjointed notes have been collected at various periods during the carrying out of a general practice. They are therefore necessarily incomplete and of an amateur character, but none the less I hope that they contain matter of some interest to the profession. I must express my indebtedness in the first place to my brother, Professor Starling, for the valuable help he has given me during the preparation of this paper, especially in regard to the physiological interpretation of many of the phenomena set forth herein; in the second place to Dr. Martin for the loan of notes and papers relating to the estimations of blood pressure in various conditions; and last, but not least, to the medical staff of the Norfolk and Norwich Hospital for their kind permission to make full use of the cases under their charge in that hospital.

Norwich.

A STUDY OF THE STREPTOCOCCI PATHOGENIC FOR MAN.

By F. W. ANDREWES, M.D. OXON., F.R.C.P. LOND.,
PATHOLOGIST TO, AND LECTURER ON PATHOLOGY AT, ST. BARTHOLOMEW'S HOSPITAL, LONDON;

AND

T. J. HORDER, M.D. LOND., F.R.C.P. LOND.,
MEDICAL REGISTRAR AND DEMONSTRATOR OF MORBID ANATOMY AT ST. BARTHOLOMEW'S HOSPITAL, LONDON; PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL, LONDON.

(Concluded from p. 782.)

VI. GRAPHIC REPRESENTATION OF RESULTS OBTAINED BY EMPLOYING GORDON'S TESTS UPON LARGE BODIES OF STREPTOCOCCI.

WHERE a sufficient number of specimens of streptococci has been examined from any one source, or any one disease, it is possible to express the general chemical facies of the forms found by a curve based on the *percentage* frequency of a positive reaction to each of Gordon's tests, taking these in constant order. Thus, in Fig. 2, 50 per cent. of all the colonies examined produced clotting in milk, 90 per cent. gave a positive reaction with (i.e., formed acid in) saccharose, and so on. By this means, as Gordon has already shown, broad similarities and differences become apparent, and if the number of specimens upon which the curve is based is sufficiently large, minor differences in reactions are more or less effaced. We have constructed a number of such graphic representations of our results and we subjoin a few of these as examples of this mode of treatment.

These curves illustrate several important points. The curve shown in Fig. 2 contains such a preponderance of saprophytic forms that the inclusion of 20 per cent. of parasites scarcely distinguishes it from that seen in Fig. 7. We have nevertheless included it as offering the most complete general streptococcal curve available. A comparison of Figs. 3 and 7 shows the broad distinctions between the parasitic and saprophytic streptococci. The pneumococci in Fig. 4 offer a very different picture owing to the high raffinose—and relatively high inulin—percentages, while the glucosides stand at a very low level. The contrast between Figs. 5 and 6 is of special interest, as illustrating the wide distinctions between the streptococci concerned in acute suppurative processes and those found in malignant endocarditis; the latter, as we have previously urged, correspond very closely with the common saprophytes of the alimentary canal, as is seen by comparing Figs. 6 and 7. Lack of space prevents our enlarging further on these curves, which must be left to speak for themselves.

VII. THE BEARING OF THESE INVESTIGATIONS UPON DIAGNOSIS AND TREATMENT.

Accurate diagnosis in any case of streptococcal infection, Wellcome, a univalent serum for use in cases of infection by streptococcus pyogenes, in the manufacture of which some five or six strains tested by us were exclusively employed. This univalent "pyogenes serum" has already given good results in some cases, and in one, at least, where a polyvalent serum had proved less satisfactory in its effect. It is as yet too early to speak confidently of its advantages over the polyvalent sera in ordinary use. With univalent sera ready to hand against the different types of streptococci the appropriate one could be employed as soon as the organism in any particular case was isolated and tested. This would obviate the alternative course of preparing a special univalent serum *after* the separation of the organism, as carried out by one of us (T. J. H.) on two occasions in cases of malignant endocarditis.[1] This method is impracticable in all but the most chronic cases, for it involves the loss of valuable time; no serum can be expected to be rich in antibodies in less than from six to eight weeks.

The nature of the antibodies in the serum of an animal immunised against streptococci is presumably opsonic. There is no evidence that they are antitoxic or directly bactericidal. The question may properly be raised as to the precise specificity of such opsonins within the group of streptococci. Bulloch and Western, in a recent paper,[2] have demonstrated that as regards staphylococcus aureus, the tubercle bacillus, and bacillus pyocyaneus perfectly distinct opsonins are concerned. These three organisms, however, belong to distinct genera, and we know of no evidence as to the specificity of opsonins within the limits of a single genus. Lack of time has alone prevented our attacking this interesting problem amongst the streptococci. It may be that there is a single opsonin against all streptococci, but in the absence of any evidence to this effect such a presumption would be exceedingly unsafe; such collateral evidence as may be found amongst the agglutinins is against it.

A new chapter has recently been opened in the treatment of streptococcal infections by the guarded use of specially prepared vaccines (Wright). The good results which have undoubtedly attended the injection of dead cultures of staphylococci in chronic infections by these organisms will possibly also follow a similar mode of treatment in diseases of streptococcal origin. This treatment by vaccination may prove more successful than the use of antistreptococcus serum, more particularly in cases of chronic infection. Many cases of streptococcal infection are, however, of an acute and rapidly fatal character and it may well be that serum treatment will prove better adapted for such cases than vaccination. In any case it remains a matter of paramount importance that the type of streptococcus concerned in the case should be recognised. Given the ready means for recognition of the different types of streptococci, specific vaccines of known strength might be ready at hand as soon as the diagnosis has been established.

Pathological Department, St. Bartholomew's Hospital.

THORACOTOMY FOR TRAUMATIC HÆMOTHORAX DUE TO A WOUND OF AN INTERCOSTAL ARTERY.

By DONALD DUFF, F.R.C.S. EDIN., F.F.P.S. GLASG.,
SURGEON TO THE GLASGOW CENTRAL DISPENSARY; EXTRA ASSISTANT SURGEON TO THE GLASGOW ROYAL INFIRMARY, ETC.;

AND

JOHN ALLAN, L.R.C.P., L.R.C.S. EDIN., L F.P.S. GLASG.,
EXTRA SURGEON TO THE GLASGOW CENTRAL DISPENSARY.

WOUNDS of the intercostal arteries, except as part of severe injury to the chest wall, are comparatively rare, and especially so when the injury occurs to the larger or superior branch. This vessel from its anatomical position—in the groove on the lower part of the internal surface of the rib—is well protected from injury by the overlapping inferior border of that bone; stab wounds which penetrate the chest wall usually miss the vessel or at most only divide the smaller branch which runs along the lower part of the intercostal space. The following case occurring in the practice of one of us (J. A.) is of interest.

The patient, a man, aged 46 years, accidentally fell through a glass door on Dec. 22nd, 1905, and received a V-shaped wound of the chest wall in the sixth left intercostal space and distant about 1½ inches from the mid-sternal line; the apex of the V pointed downwards and inwards towards the umbilicus. The general shape of the wound beneath the skin flap was triangular, the apex being immediately below the sixth rib. There was free oozing from the depth of the wound but it was quite impossible to detect any spouting point. With antiseptic precautions a sterile probe was carefully passed, when it was found that the instrument penetrated in a slanting direction towards the lower border of the sixth rib and to a depth of four inches from the skin margin. The wound was next slightly enlarged and explored with the finger but no pieces of glass, bare rib, or definite communication with the pleural cavity could be found. The wound was carefully cleared of blood clot and packed with sterile gauze. The patient had no reactionary temperature and next day there was no stain showing through the dressings. He had passed a fair night but complained of slight pain on respiration and had a little cough. There had been no hæmoptysis. On the 24th when the wound was dressed the packing was found extruded and the skin surfaces adherent; as there was no discharge the packing was not reinserted The temperature was normal, the pulse was 84, and the respirations were 20. Friction sounds were heard in the region of the wound and from that level downwards towards the base of the lung. Vocal fremitus and resonance were not altered and the patient still complained of pain on respiration and of cough. He continued pretty much in the same condition for the next two or three days, the difference in breath sounds, on percussion, in vocal fremitus and vocal resonance not being much different in comparison with the other side. On the 28th, six days after the injury, the breathing was more difficult and the patient complained of a choking sensation. Comparative dulness was present from the level of the wound to the base of the lung, both in front and at the back, the upper line of the dulness altering with change of position. The apex impulse was displaced to within half an inch of the left sternal margin. The respiratory murmur was diminished in intensity. The respirations numbered 24 per minute, the pulse was 86 and the temperature was normal. An exploratory needle was introduced into the pleural cavity and blood-stained fluid was found, which, however, contained no pus cells and no micro-organisms. On the night of the 28th the patient when seen by one of us (D. D.) had orthopnœa and complained much of a choking feeling when asked to lie back in bed. The movements of the chest wall were free on the right side but limited on the left; comparative dulness was present over the base of the lung behind but was not so marked in front. The patient appeared to be in a serious condition and a diagnosis of hæmothorax due to a wound of the upper branch of the sixth intercostal artery was made. Operation was decided on and thoracotomy was performed as the only feasible means of securing the bleeding point and of relieving the urgent symptoms due to the intrathoracic hæmorrhage. An incision was made in the line of the original wound and the tract of the laceration was explored; the apex of the wound was found just below the sixth rib and hæmorrhage was taking place from both proximal and distal ends of the divided intercostal artery. A small opening which admitted the point of a pair of dressing forceps was found in the parietal pleura and from this opening the blood escaped from the chest at considerable pressure; this opening was enlarged, giving exit to a large quantity of blood, considerably over a pint being evacuated. The blood was allowed to escape from the chest slowly by soaking through a pad of gauze, in order to minimise as much as possible the effect of sudden relief of intrathoracic pressure The periosteum over the sixth rib was incised and stripped down with an elevator; the two ends of the divided intercostal artery were raised from the groove on the posterior surface of the rib and tied. A drainage-tube was inserted and the wound was partially stitched and packed. After the operation the respiration was much improved and the pulse was of good volume and tension. During the operation the anæsthetic (chloroform) gave some anxiety but the difficulty experienced was successfully overcome. On the 29th some serum was present on the dressings but no fresh hæmorrhage had taken place; the patient had had some sleep in snatches and viewed in the light of the facts which we have set forth above, can only be obtained by carrying the bacteriological investigation a stage beyond the mere isolation of the infecting organism. The methods available for securing a pure culture of the invading streptococcus—notably the technique of blood examination—have been so improved in recent years that no great difficulty is usually encountered in this process. The organism, once isolated, must be subjected to a full investigation on the lines already laid down, which, to be complete, should include not only Gordon's nine tests but also morphology in broth culture, capacity for growth on gelatin at 20° C., and, if possible, inoculation into a mouse as soon as may be after isolation in pure culture. As a rule it is not difficult to refer any given streptococcus to one or another of the types which we have laid down above as provisional species. After what we have said as to the frequency of intermediate forms, it is not easy to present any hard and fast diagrammatic schedule, but it may be convenient to summarise the five main types to which we have given names as follows:—

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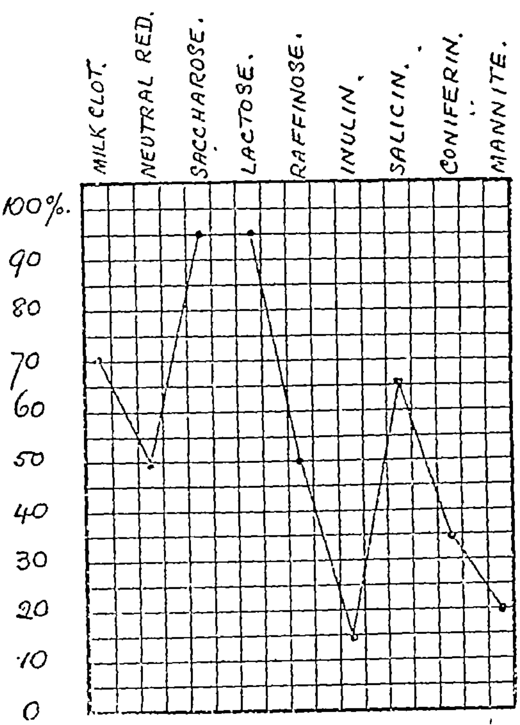
[1] THE LANCET, July 16th, 1904, p. 143.

[2] Proceedings of the Royal Society, B., vol. lxxvii., 1906, p. 531.

TABLE IX.

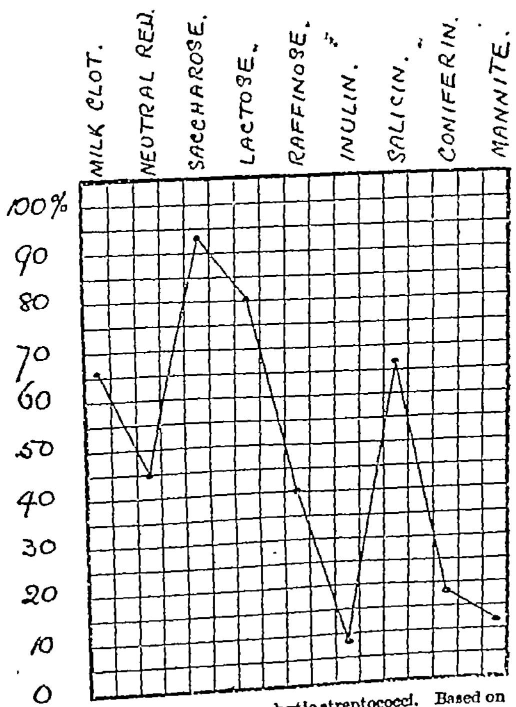
	Types.	Reactions with Gordon's nine tests. Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Coniferin.	Mannite.	Growth on gelatin at 20° C.	Morphology.	Pathogenesis for mouse.
1	Streptococcus pyogenes	·	·	+	+	·	·	+	·	·	+	Longus.	+
2	" salivarius	+	+	+	+	+	·	·	·	·	±	Brevis.	·
3	" anginosus	+	+	+	+	·	·	·	·	·	±	Longus	+
4	" fæcalis	+	+	+	+	·	·	+	+	+	+	Brevis.	·
5	Pneumococcus	+	·	+	+	+	+	·	·	·	·	"	+

FIG. 6.



Reaction-curve of 20 strains of streptococci from cases of malignant endocarditis. Two strains of pneumococci are included.

FIG. 7.



Reaction-curve of human saprophytic streptococci. Based on 300 salivary specimens (Gordon) and 300 fæcal specimens (Houston).

NOTE.—The coniferin percentage refers to salivary sorts alone, Houston not having employed this test. It is probable that the coniferin percentage in fæcal species is higher than in salivary species, as we have found some of the most abundant fæcal forms to ferment this body.

Having ascertained the type of streptococcus concerned in any given case one is in a much better position to judge of the possible source of the organism, to form a prognosis, and to initiate treatment.

We venture to believe that the results of the investigations which we have detailed in this communication may have a very direct and important bearing upon the treatment of streptococcal infections. Already, in our preliminary remarks, we have hinted at a possible line along which serum therapy may advance with more hope of success than this treatment at present enjoys. This development consists in adapting the immune serum employed in any particular case more closely to the actual organism causing the disease. If, as we have shown, different pathogenic streptococci exhibit marked differences in their metabolic reactions *in vitro*, it is highly probable that the effects of these streptococci upon the tissues are associated with similar marked differences in chemical action. And if this be true, it follows that a more complete antagonism between the serum and the organism may be expected if the former has been derived from an animal specifically immunised against the latter. In other words, better results may *a priori* be expected from a powerful univalent serum than from a polyvalent one, even though the latter contains as one of its ingredients an antibody against the special streptococcus concerned. It must be remembered that at present the polyvalent sera on the market are polyvalent only in the sense that they have been prepared by the use of a number of strains of streptococci derived from different sources, but not necessarily presenting any differences in chemical reaction. It is probable that the bulk of the strains which have hitherto been employed in producing polyvalent sera are referable to streptococcus pyogenes, and such sera may be in effect largely univalent, however various the diseases from which the organisms have been derived. A truly polyvalent serum would be made by inoculating a horse with each of the different types of streptococci considered in the preceding sections until the animal became immune to each type. Such a serum might well be of value in urgent cases pending the isolation and testing of the invading streptococcus, which usually occupies three or four days. But the soundest method appears to us to keep a special horse for each type of streptococcus: in this way a more or less specific serum would be available for use against each type of organism and it may fairly be presumed that the specific antibodies in such sera would be more potent than when forming only one element in a polyvalent serum.

Following out the above idea we have already had prepared for us, by the courtesy of Messrs. Burroughs and from diarrhœa for 12 months and on admission his urine was found to contain an appreciable amount of albumin. From the notes of his case it would appear that after a rigor his temperature had risen to 103° F., falling to 100° after a profuse sweating. It had then remained normal for a few days but a repetition of the rigors and sweatings had occurred. A consultation was held and the man was transferred to my wards for operation. Next day an exploring syringe was inserted in practically the same position as in the former case and pus having been found a method similar to the previous one was pursued. On exposing the surface of the liver a thin flaky pus was seen welling up from around the needle which had been left *in situ*; the wound was packed with gauze whilst the pleural sac was sutured off and the liver was fixed to the deeper planes of the wound. On opening the abscess, which was done immediately, not more than one and a half ounces of unhealthy-looking pus escaped. The temperature after the first three days fell to normal and remained so throughout his convalescence, which was uneventful. He was discharged to a sick furlough looking in good health but still with a small amount of albumin in the urine.

In the first operation when the pleural sac was opened the patient's condition from threatened respiratory failure became alarming from the action of the left lung being impeded by the pressure of the pillow beneath the chest and by the pressure of the abscess and from the presence of air in the right pleural cavity. He was turned over on his back so far as was consistent with the continuation of the operation and as soon as the cavity was shut off the breathing became normal. It is difficult for me—even if the second abscess was in existence at the time of the first operation and was overlooked, though the character of the pus it contained is against the view that it was of the same nature as that of the larger collection—to account for the disconcerting symptoms which intervened so suddenly while gently syringing the wound and partially obliterated sinus. Though it has been urged that liver pus is sterile, the entrance into the peritoneal cavity of carbolic lotion and abscess débris must have inevitably produced a more or less limited peritonitis, but the symptoms of peritonism readily disappeared under treatment with enemata and sulphate of sodium. Some small perforation may have taken place on the anterior surface of the liver, resulting in a localised abscess limited by adhesions. In the second case the numerous rigors, the high temperature, the profuse sweats, and the small size of the abscess and the character of the pus seemed to suggest a possible pyæmic origin, but the wound healed rapidly and there was no interruption of the apyrexia throughout the recovery.

Limited as my experience is in the operative treatment of hepatic abscess, I submit with all deference the opinion that it is not always advisable to rely on the use of any of the various special instruments—trocars and so forth—to the exclusion of ordinary surgical procedures, for frequently those cases in which efforts have been made for their treatment by the use of such specially devised apparatus have eventually to be submitted to an excision of a portion of a rib to insure efficient drainage. In the second case in which though the abscess was close to the surface of the liver there were no diaphragmatic adhesions and in which there was unhealthy pus welling up copiously around the needle, nothing but disaster, I think, must have followed the use alone of any form of trocar and cannula. And I venture to think that such stabs in the dark, or at least into an obscurity, are out of place in those cases which, unless there are extensive and firm adhesions present, a condition of which we can never feel assured without an incision, can only be satisfactorily grappled with by one of the accepted surgical methods.

My thanks are due to Major W. G. Beyts, R.A.M.C., Civil Surgeon W. Rice, and the late Civil Surgeon J. J. O'Halloran for their valuable assistance in these two cases.

A RUSSIAN PIONEER INSTITUTION FOR DEAF-MUTES.—At the beginning of January, 1907, says the *Novoe Vremya*, it is proposed to call a pan-Russian congress of teachers and caretakers of deaf-mute children in commemoration of the introduction into Russia of the education of deaf-mutes for the first time, in the experimental school for deaf-mutes in Pavlovsk, founded 100 years ago by the Empress Marie Theodorovna.

ENDEMIC HÆMATURIA.[1]

BY PHILIP G. STOCK, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H.,

LATE CAPTAIN, R.A.M.C.

THE following notes, founded on 65 cases of endemic hæmaturia which occurred amongst the troops in South Africa in 1902, are brought to notice for two reasons: (1) they throw some light on the incubation period of the disease; and (2) because a new line of treatment is suggested which offers some hope of a definite cure. Endemic hæmaturia has been observed for many years; both its frequency and the occurrence of vesical calculi were remarked on by the French surgeons during the invasion of Egypt by Napoleon, but it was not until 1851 that Bilharz discovered the bilharzia hæmatobia in Cairo. Since then it has been observed over practically the whole of the African continent, to which, with the exception of the Mauritius, it was thought to be confined; but lately cases have been reported from Arabia, Cyprus, Antigua (W.I.), India, and even in England, which would point to its having a wide geographical distribution; in Egypt it is a common disease and a fruitful cause of urinary calculi. In South Africa I have collected information which points to its being widely distributed, and cases have been traced to the Vaal, Orange, and Apis rivers, Pretoria, M'Nkandu, Newcastle, the Mooi and Klip rivers, Umzindin and Maritzburg, and streams at Middleburg, Cape Colony, and in the Transvaal, whilst in the Rustenburg valley it is truly endemic.

The bilharzia hæmatobia is a trematode worm in which the male and female reproductive organs occur in separate individuals. The male worm is of a whitish colour and measures about 16 millimetres in length; the female is about 20 millimetres long and lies in the gynæcophoric canal of the male with her ends protruding; the eggs, which it is stated can be distinguished in the uterus, appear in the patient's urine as bright, translucent oval bodies, with a smooth surface and a thin non-operculated shell, possessing a spine situated at one end. It is stated in the text-books that this spine is sometimes situated laterally, this being especially the case when the disease involves the rectum, and the ingenious idea has been advanced that this is due to the greater pressure exercised by the fæces as compared with the urine, but in the many fresh specimens I have examined I have failed to find an ovum with a spine situated laterally.

According to Professor Looss the lateral spine is caused by the egg not being able to take up its normal position in the oötype but whilst, as mentioned before, I have never discovered this lateral placement in fresh specimens, in those which have been mounted a shrinkage may ensue giving a false impression as to the true position of the spine. The ovum contains a ciliated embryo which can be hatched out by mixing some of the urine containing it with water, when it soon acquires a rapid movement, often changing its form. Should the embryos become hatched out in the urine they quickly die and even in water they quickly disappear; the longest period that they have been kept alive is about 36 hours. Sonsino, however, states that they penetrate the body of some species of mollusc which, becoming transformed into a nurse (or redia), produces in its interior a generation of larvæ which in their turn escape and enter the body of the definite host to become mature worms.

I have endeavoured to repeat the observations of Sonsino, but so far without success, and this portion of its life-history cannot be definitely settled; it seems more likely that the embryo itself enters the human host, there to develop into the young worm. That it gains access to its human host or to the monkey, in which it has been found, by means of drinking water is, I think, borne out by the following facts. 1. An epidemic occurred amongst the men of the 8th Hussars stationed at Pretoria in 1902. The camp was situated on the hills to the north-west of the town and it was the custom of the men to bathe in the spruit (Skinner's spruit) which ran along the bottom of the camp. 43 cases occurred and in all a history of having either drunk the water or bathed in the spruit was obtained. 2. Whilst monkeys undoubtedly drink, it is improbable that they ever bathe.

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[1] Summary of a paper read before the Transvaal Medical Society, Johannesburg.

complained much of thirst. The pulse was 90 per minute, of good volume and tension. The respirations were 18 and the temperature was 100° F. On the 30th the patient was fairly well, having slept fully nine hours. There was no stain on the dressings. The temperature was 101°, the pulse was 96, and the respirations were 24. On the next day (Dec. 31st) the wound was dressed and the drainage-tube was removed, some sterilised gauze being inserted in its place. Examination of the chest showed the presence of pneumothorax with considerable displacement of thoracic viscera; the apex impulse was half an inch to the right of the sternum and the whole left side of the chest was hyper-resonant. On Jan. 2nd, 1906, the patient was not so well, the temperature registering 100·5°, the respirations numbering 30, and the pulse being 120, but it was found that he had been taking oranges and he complained of pain in the epigastrium. He was given castor oil and on the following day he felt much better. He complained of palpitation and some friction was heard in the region of the wound. For the next few days the patient rapidly improved, the temperature fell to normal, the breath sounds became audible over the lower part of the left chest, and the apex gradually resumed its normal position. Breathing exercises were given by means of a Wolff's bottle. The wound was quite healed on Jan. 13th, a fortnight after the operation, no pus being present from first to last. The patient went out against directions and got a chill which kept him in bed for a few days, but he was practically well at the end of January and able to undertake a journey from Glasgow to Portsmouth, subsequent reports of his condition being satisfactory. At the time that he left the measurements of the chest showed a difference of three-quarters of an inch between the right and left sides at the level of the sixth rib. The temperature was normal and the respirations numbered 18. The patient felt no pain. The breath sounds were heard all over the chest on the left side but were, if anything, somewhat fainter than on the right side.

One or two points in connexion with this case are worthy of note and are, in our opinion, of sufficient interest to warrant the case being recorded. The rarity of the injury and the fact that hæmorrhage took place into the pleural cavity without any pneumothorax being present till after the chest had been opened into surgically are important features. There was undoubtedly an opening in the parietal pleura from the first produced by a pointed fragment of glass, but the wound passed in such a direction—i.e., piercing first the external intercostal muscle, then between the muscles, and then passing through the internal muscle about one inch farther back—that the overlapping tissues evidently acted like a valve and prevented the entrance of air, as they also did the exit of blood in an outward direction from the divided artery. Fortunately for the patient, although the operation was performed at his home, the aseptic precautions proved effectual and no pus was seen. Had empyema developed his chances of recovery would have been remote considering his general condition from loss of blood and shock. During the first two or three days after the operation the patient's danger appeared to arise mainly from a tendency to syncope due to the displacement and consequent embarrassment of the heart. When absorption of the air began he rapidly improved.

Glasgow.

TWO CASES OF HEPATIC ABSCESS TREATED BY THE TRANSPLEURAL OPERATION.

BY H. TAYLOR, M.A. CANTAB., F.R.C.S. EDIN., M.A., M.D. DUB.,
SURGEON-CAPTAIN, ARMY MEDICAL RESERVE.

I HAVE ventured to publish these two cases because they would seem to belong to that category in which Jacobson[1] includes "those grave and difficult cases where a hydatid cyst or hepatic abscess instead of making its way towards the abdominal wall works upwards, thrusting up the base of the lung" and so have to be approached by a transthoracic incision.

CASE 1.—A man, aged 21 years, of the 4th Battalion Manchester Regiment, was transferred from Northampton to Colchester Station Hospital for the purpose of being invalided from the service. He was, however, admitted to my wards for observation, the history of the case being that he had suffered from dysentery with an "enlarged liver" while in Ladysmith during the siege. His face was sallow and his features were somewhat "drawn" and he had a moderate diarrhœa with dark-coloured offensive pultaceous stools but with no pus or blood. There was no definite swelling to be defined, but there were a sensation of increased resistance on palpation below the costal margin and some dulness at the base of the right lung. There was no history of syphilis or malaria, the spleen could not be felt, and there were no rigors or sweatings. As there was no urgency in his symptoms and as the liver had been explored with a negative result before his transfer to Colchester, it was decided after a consultation to await more definite indications for treatment. The diarrhœa was easily controlled by a little opium, salol, and bismuth and the patient's temperature rose to 100° F. on two occasions only. On Oct. 29th, some three weeks after admission, however, the man complained of considerable pain and his temperature was found to be 102°. On the next morning, therefore, after preparations had been made for operation if necessary, the liver was again explored and after two or three attempts a cavity containing typical liver pus was entered at a depth of some three inches, the needle being between the eighth and ninth ribs, approximating to the post-axillary line. The abscess appeared to be one of those which instead of working downwards and outwards to the parietes was extending upwards and backwards to the hinder part of the liver. I therefore determined to adopt the transthoracic route in preference to the ordinary subcostal transperitoneal or subpleural intercostal incisions. The needle being left in as a guide and chloroform having been administered, an incision some three or four inches long was made over the ninth rib and about two and a half inches of it were excised, the pleura and diaphragm were cut through, and the liver was exposed. A strong suture was passed deeply through the liver substance and through the diaphragm and integuments at each end of the incision, thus anchoring the viscus securely to the wound, and the pleural cavity was then sutured off as quickly as possible. Very shallow and interrupted respiration supervened on the admission of air to the pleural sac and the patient became very cyanotic, but he rapidly recovered as soon as the cavity was securely sealed. The liver and the edges of the diaphragm were fixed by some further sutures to the deeper layers of the wound, a dressing was applied, and the patient was sent back to the ward, as it was decided to wait for a day or two to allow adhesions to form before proceeding to open the abscess. This was done on the third day after the operation and about two and a half pints of chocolate-coloured pus having been evacuated the cavity was gently syringed out with iodine water. The discharge gradually ceased and on Dec. 7th the cavity had so contracted down that a tube barely one and a half inches long was with difficulty retained in the wound. On the morning of Dec. 8th the temperature, hitherto normal since the opening of the abscess, was found to be 99·6°. While the wound was being gently syringed out with 1 in 40 carbolic lotion the patient suddenly complained of great pain in the epigastrium, became pallid, broke out into a profuse perspiration, and vomited. I was considerably alarmed, fearing that the syringing—gentle as it had been—had broken through some attenuated portion of the wall of the abscess cavity and possibly infected the peritoneum. A quarter of a grain of morphine was injected and by the evening the pain had abated and the vomiting had ceased, but the abdomen, though soft and moving easily on respiration, was somewhat distended. The temperature continued to fluctuate between 99° and 102° and a suspicion arose that there was a collection of pus in front, either intrahepatic or between the liver and the parietes, and on the 22nd a definite area of dulness being defined an incision was made just below the costal margin and a pint of creamy inodorous pus was evacuated. The temperature fell to normal that evening and the patient made a good and uninterrupted recovery.

CASE 2.—A man belonging to the 5th Royal Irish Lancers was admitted to one of the medical wards in Colchester Hospital on Oct. 7th, 1902. He had had dysentery at Ladysmith and had been operated on at Nauwport for abscess of the liver and a quart of pus was evacuated. He was invalided home and was subsequently admitted to hospital on the above date. He had suffered more or less continuously have all been suggested as possible causes. Sir Patrick Manson gives as his own theory the continual wounding of the little toe, the most exposed portion of the foot, by the sharp grasses and jungle through which the sufferers from this disease are accustomed to walk barefooted. In the case reported above there was no history of loin pains, of any other persons of the family having suffered from this disease or from leprosy, or of the patient having at any time worn toe-rings. He had gone barefooted up to the time when he had left home but there was no jungle and very little grass at Port Antonio.

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[1] Jacobson: Operations of Surgery, vol. ii., p. 351.

Liverpool.

THE STUDY OF A CASE OF PLAGUE.

By J. BURTON CLELAND, M.D., CH.M. SYDNEY,
GOVERNMENT PATHOLOGIST AND BACTERIOLOGIST, PERTH, WESTERN AUSTRALIA.

(From the Pathological Laboratory, Department of Public Health, Perth.)

IN a community almost entirely of European descent and where the incidence of plague is slight those cases that do occur offer exceptional facilities for studying its etiology, spread, and symptoms. In one of the recent cases in Perth, Western Australia, the date of onset of the symptoms seemed to suggest that these were coincident with the death of a proportion of the bacilli and the consequent liberation of an endocellular toxin. As this, if true, may throw some light on the lengthy incubation periods of various infectious diseases the circumstances seem worthy of record.

The patient, a young man, worked as a painter in the "infected area" (that is, the area in which infected rats were known to be present) in Perth but resided in a healthy suburb. About ten days before becoming ill he had noticed the smell of dead rats in the workshop, but the infection probably dated from some days later. He had some diarrhœa from May 9th to 12th but only became ill on the morning of the 13th, when he had "shivers" and his temperature rose to 104° F. Next day he had severe pain in the left groin and the case was reported as plague to the Central Board of Health in the evening of that day; his temperature was then 102·6° and the pulse was 90. On examination on the morning of the 15th the temperature was 101·4° and the pulse was 102 and soft. The eyes had a salmon coloured suffusion (very characteristic of cases of plague in Australia), the tongue being thickly coated and dry. He was very restless and complained of a frequent desire to pass urine and stools, as well as of pain in the left lower part of the abdomen and both groins. There were diffuse firmness and tenderness over the left iliac region and in the left groin; these were less marked in the right groin. No glands were definitely palpable. There were no sores on the legs. The matron at the Plague Hospital said the patient had the "plague smell."

A hypodermic needle was inserted into the left groin and one drop of a sero-sanguinolent fluid was withdrawn. This contained enormous numbers of plague bacilli, some of which were bipolar but many had a degenerated appearance. In blood films made at the same time the plague bacilli, typically bipolar, were two or three times as numerous as the leucocytes, say, roughly, 15,000 per cubic millimetre. Pure cultures were obtained from these two sources. The patient became rapidly worse and died suddenly in a "kind of convulsion" about 6 P.M.

Necropsy.—At the post-mortem examination (15 hours after death) there were found on the chest from 15 to 20 small red papules with yellow centres, usually connected with hairs; there were scattered similar ones on the thighs. There was a purplish area of about the size of half-a-crown where the needle had been inserted in the groin. On opening the abdomen a little yellowish bloody fluid escaped. The whole of the retro-peritoneal tissues from the lower part of the liver into the pelvis were the seat of a hæmorrhagic exudation and quite black. This condition extended on to the anterior abdominal wall nearly as far as the umbilicus and into the iliac regions, ending as streaks and splashes of hæmorrhage. The various imbedded glands were enlarged but not markedly so. This hæmorrhagic condition extended behind Poupart's ligament into both groins, where it was very extensive; in the left groin there was in addition a solid gelatinous-looking œdema. The liver was large, pale, and glistening with a few petechiæ: the spleen was large and rather firm; the kidneys were engorged, large, with numerous large petechiæ on the surface; the suprarenals were healthy. The intestines seemed normal save for various splashes of blood under the serous coat of the descending colon, sigmoid flexure, and rectum. The bladder showed similar subserous hæmorrhages. The mesenteric glands were neither enlarged nor hæmorrhagic. There were scattered petechial hæmorrhages in the mesentery. The lungs were normal, with a very few petechiæ. There were a few subpericardial petechiæ; the blood in the heart was partly fluid, partly tarry. A film from the spleen showed great numbers of typical bipolar bacilli. In a film from the bloody exudate of the thigh several plague bacilli were seen in each field, but they were small, diplococcal-looking, and often in chains of several elements.

Relation of onset of symptoms to death of bacilli.—As has been already stated, the film made from fluid taken from the bubo during life contained inconceivable numbers of plague bacilli but comparatively few of these were typically bipolar, the great majority appearing as granular, irregular, and broken-up fragments. In marked contradistinction to this appearance were the pictures presented by blood films taken at the same time and films from the spleen obtained post mortem, in both of which the plague bacilli were beautifully bipolar. As the patient had only been ill for 48 hours before the taking of the film from the groin it seemed barely possible that the plague bacilli had multiplied there to such an extent (the film was nearly "black" with them) and then had died to such an extent, all within that brief period. The interpretation, in fact, which naturally suggested itself for this case and plague in general was this—that living plague bacilli probably liberate no toxic bodies or very few; dead bacilli, as we know, from the reaction to protective inoculation, set free powerful ones. If living plague bacilli gain entrance through the skin of the lower limb they would reach, by means of the lymphatics, the glands in the groin, they would here multiply and, in certain instances, escape onwards, finally, in septicæmic cases, reaching the blood. Being still alive there would, so far, be no reaction in the tissues and the patient would still be in the incubation period of the disease. Eventually, however, the bacilli, as the result of anti-microbic bodies or the exhaustion of food supply or for other reasons, die and, as would be expected, die first where they have had longest residence. As they die their endocellular toxins are liberated and local and systemic reaction follow in proportion to the dose. As it is only in rare instances that the bacilli remain and multiply at the point of inoculation or in the lymphatic vessels leading to the nearest glands lymphangitis seldom appears. It is otherwise in the lymph glands themselves in which multiplication has been marked and with their death we find the rapid formation of a bubo indicative of the local reaction to the liberated toxin and the first systemic symptoms of the disease due to its generalised effect. As antitoxins are now rapidly formed in response to the presence of these toxic bodies, the increasing doses of poison set free by the death of the bacilli in other parts are combated to a greater or less extent by them. Hence further buboes are rare, though they may occur, even up to a late date, given the rapid death of many bacilli in any particular local area and a low content of antitoxin at that spot.

Perhaps the best way to test the view here propounded is to see how its acceptance agrees with facts and explains away difficulties. Thus:—

1. If plague is, as a rule, due to inoculation through the skin, *why is there so seldom any local reaction and as rarely a lymphangitis*, these being such marked features of a wound infection by, say, streptococci? Because living plague bacilli exert only a mechanical effect and not a toxic one on the tissues, and as they only rarely remain and multiply at the seat of inoculation (such as an insect bite) or in the lymphatic vessels, no reaction follows. Hunter,[1] in THE LANCET, describes a case in which the inoculated area was comparatively large (a scratch): in which in consequence the bacilli remained and multiplied, as they did in the lymphatics also, and in which, but not until the third day, signs of reaction appeared. But if the signs of inflammation were not due to the death of the bacilli but to the presence of the living ones why was the inflammation

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[1] THE LANCET, July 14th, 1906, p. 83.

3. Even when bathing a certain amount of water generally enters the mouth and nose and is swallowed. 4. The disease having occurred in men who had only drunk the water, the view that the parasite enters the body by creeping up the urethra or anus is, I think, hardly admissible and there is no other known example of an entozoon introducing itself except by the mouth. 5. Only a small percentage of the patients with the disease who have come under my observation suffered from veldt sores, disproving the theory advanced that the embryo gains access through such an abrasion.

The parasite having entered the human host makes its way to the portal system, where the worm can be found in the smaller veins; the prostatic plexus and veins of the bladder wall are a favourite site. The time which elapses between its entrance and the onset of symptoms, which we may call the incubation period, seems to be settled from the observations of Dr. Abercrombie, who was in medical charge of the 8th Hussars during the epidemic previously referred to and who kindly provided me with the following notes. During the time that the regiment was at Pretoria several young drafts were sent out direct from England and all in due course bathed in the spruit and as a result several cases occurred in young soldiers whose residence in the country had not been more than two months. The shortest period observed was one month and the longest two months; thus it is concluded that the average incubation period is about six weeks.

On the symptoms of the disease it is not proposed to dwell at length; the hæmaturia probably first calls the patient's attention to his condition, although even then he does not always seek advice, as Dr. Abercrombie knew of many men in the regiment who were performing their mounted duties and had never reported sick, yet were passing large quantities of blood. The complications are due to the mechanical blocking of the vessels or the irritation set up by the ova. The worm living in the vein discharges its eggs which work their way through the tissues into the bladder or rectum, as the case may be. Perhaps the most characteristic lesion is seen in the interior of the bladder, where rounded, projecting masses with a rough and granulated surface are found, the result of inflammatory processes set up by the deposit of eggs in the mucous and submucous tissues. The uterus may also be affected and in one case the patient developed epididymitis which could only be ascribed to a similar cause. The large intestine is a common seat and the bleeding, taken in conjunction with the polypoid growth, may lead to an erroneous diagnosis of piles unless a microscopical examination be made. The ova have been found in the liver and lungs, in which latter they may give rise to hæmoptysis, but are not usually in sufficient numbers to cause symptoms.

An examination of the blood in this disease shows that the number of eosinophiles is enormously increased—20 per cent. or higher. In ten cases in which I made a differential count they ranged from 6 to 20 per cent. This increase in eosinophiles is not peculiar to bilharzia but often occurs in all worm parasitic diseases; in trichinosis it may actually amount to 68 per cent. of a leucocytosis of 20,000. What its exact significance or cause is is doubtful; possibly it is due to the action of some toxin or secretion of the worm circulating in the plasma. In my experience the increase is less marked in cases which have persisted for some months. Another interesting point, not usually mentioned, is the presence of fat in the urine—the quantity is best estimated by Shoxolite's process; the largest amount found was 2 per cent, and at first it was thought that this bore a definite relationship to the increase of the eosinophiles but further observation did not bear out this view.

The question of treatment has now to be considered. Up to the present the treatment has been simply symptomatic, as any drugs that will kill the parent worm must necessarily destroy the host. Prolonged inhalation of chloroform or ether, extending over many hours, has been suggested, but to me seems hardly feasible; perhaps the best results have been obtained with methylene blue. Change of climate is often advised, but what is far more important is to prevent the risk of re-infection by only drinking boiled water, or water known to be pure, and the avoidance of bathing in infected streams. It has been suggested by Colonel Birt, R.A.M.C., that the use of a "toxin" in these cases should produce good results and this is borne out by the following facts. Two patients who were suffering from bilharzia contracted enteric fever and on convalescing the urine was found to be free from the ova, and during the time they were under observation (some months) they had no recurrence of symptoms. At the post-mortem examination which was held on a native who died from dysentery and in which the bilharzia parasites were dissected out within two hours of death, the worms were found to be dead; there were well-marked dysenteric lesions of the intestines. The ascaris lumbricoides is almost invariably killed by acute infections. This seems to offer some hope of success in what must be either an incurable disease or one in which time is the only remedy.

The toxin might be conveniently administered by the hypodermic injection of Wright's antityphoid serum. It would not be necessary to give sufficiently large doses to produce a serum reaction, but a series of small doses might be tried which would cause little or no inconvenience. I have at any rate to suggest this treatment for your favourable consideration, as in severe cases the patients will gladly welcome any treatment which offers any hope of success. I have two patients undergoing this treatment, the result of which I hope to publish later. The question arises whether patients returning to England with the disease would be capable of spreading infection, but until Sonsino's observations have been confirmed and it has been shown that the mollusc or other intermediate host, or even the embryo itself, can live in the cold streams at home, it is a question that must remain unsettled, the general opinion being that there is no such risk.

A CASE OF AINHUM.

BY D. MOORE ALEXANDER, M.D. VICT.,
ALEXANDER FELLOW IN PATHOLOGY, THE UNIVERSITY OF LIVERPOOL;
AND
ROBERT DONALDSON, M.A., M B., CH.B. EDIN.,
LATE SENIOR HOUSE SURGEON, ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

THIS rare local disease occurred in a seaman, aged 44 years. He was a native of Jamaica and had been born in Port Antonio where he had spent his youth until he was 14 years old, at which age he had left home and gone to sea. When he would be about 24 years of age a slight excrescence appeared on the inner side of the flexor aspect of the minimus of the right foot in the flexure of the distal inter-phalangeal joint. This the patient treated as a corn and pared it down. It slowly grew again and the paring process had to be repeated. The growth was, however, exceedingly slow, so that months elapsed between the use of the knife. On making an examination of the feet, the little toe looked as though a hair or some fine ligature had been drawn tightly round the distal joint and had eaten its way into the flesh. This effect was heightened by the fact that the part beyond the constriction was much hypertrophied, being as large as a hazel-nut and lay doubled up underneath the proximal portion of the toe. The bridge of tissue connecting these parts together was very narrow. There were a slight amount of excoriation and ulceration at the flexure. The toe was freely moveable upon the bridge of tissue but rather painful. The hypertrophied portion felt tense to the touch. The man complained of the pain, which made walking uncomfortable, and asked to have the part beyond the constriction removed. This was done with a sharp pair of scissors and the hard fibrous tissue that composed the band of constriction did not bleed at all in the process. The other toes of both feet were carefully examined but no traces of any constriction were found.

The literature on the subject of this uncommon disease is not large; the only account of any length is to be found in Sir Patrick Manson's "Tropical Diseases." The description given there of the early stages agrees very closely with the foregoing account of this case. It appears to attack only the dark-skinned races and to begin usually with the little toe. It is rare in women and children and most common in adult males. There is nothing noteworthy in the pathology beyond hypertrophy of the adipose tissue which infiltrates the bone in the part beyond the constriction. The theories as to the true nature and cause of this disease are numerous. That it may be a trophic nervous disturbance is supported by the occurrence in some cases of severe loin pains in the earlier stages and by the hereditary tendency noticed by some observers. Leprosy, scleroderma, the wearing of toe-rings have all been suggested as possible causes. Sir Patrick Manson gives as his own theory the continual wounding of the little toe, the most exposed portion of the foot, by the sharp grasses and jungle through which the sufferers from this disease are accustomed to walk barefooted. In the case reported above there was no history of loin pains, of any other persons of the family having suffered from this disease or from leprosy, or of the patient having at any time worn toe-rings. He had gone barefooted up to the time when he had left home but there was no jungle and very little grass at Port Antonio.

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postponed till the third day, when we know that a streptococcal wound infection may show the first signs of reaction in as early a time as six hours? Further, the minuteness and the nature of the wound caused by a suctorial insect (such as a flea) probably both aid in enabling the bacilli to pass on without multiplying locally.

2. *Why is one set of glands, and most usually those of the groin, alone affected?*—Because these are the glands draining the area of inoculation; in them the bacilli are first arrested and multiply greatly before passing on to other groups or the blood stream. In them they die first and in greatest numbers and in consequence set up an intense local reaction—the bubo.

3. *Why are buboes sometimes absent?*—Because the bacilli have entered the body by other routes than skin inoculation; or, if the latter has occurred, they have escaped the nearest glands by entering more directly into the blood stream or have multiplied in the glands to a less extent than usual.

4 *Why do buboes sometimes appear as late as the second week of the disease?*—This has been already explained.

5. *Why do no symptoms appear during the incubation period* of this disease (and probably some other diseases), though we know that during this period the bacteria are multiplying rapidly and must be present in great numbers? Because the living bacilli are not toxic and it takes some days before anti-microbic bodies or other forces can destroy a sufficient number of the bacilli and so set free large doses of toxin.

It will be seen that this view, if adopted, lends strong support to the skin inoculation theory of plague, so ably set forth and supported by Dr. J. Ashburton Thompson of Sydney in his "Plague Reports," and which our experience here gives us strong grounds for supposing to be correct. To conclude, the theory I have set forth may be summed up in an apparent paradox: The onset of signs and symptoms in plague is the first indication of commencing recovery from the disease!

Perth, Western Australia.

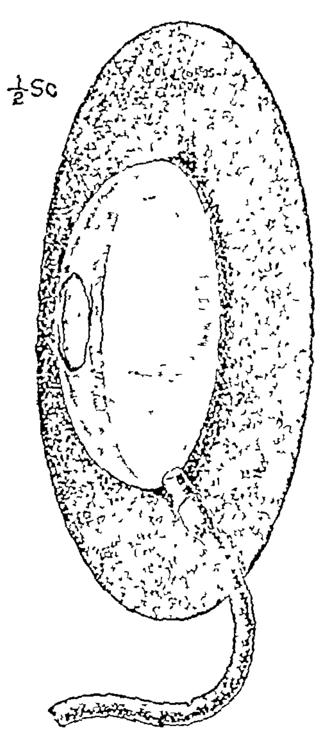
THE SUPRAPUBIC DRESSING.

BY G. H. COLT, M.A., M.B. CANTAB., M.R.C.S. ENG.

IN THE LANCET of Nov. 4th, 1905 (p. 1322), there is an account of some experiments which led up to a device described as a new dressing for cases of suprapubic cystotomy. The selection of the size of the apparatus was necessarily a matter which needed more extended observation and as a result of this it has been found necessary to add to the set of apparatus the two pieces described below. The oval glass has been produced by Messrs. Down Bros., Limited, only after very considerable trouble and expense. Whereas the cylindrical pattern can be readily made by a glass blower from glass tubing the oval pattern has to be manufactured by means of a mould. It is unnecessary to enter into a description of the various experimental patterns which were made to determine the size and shape of the oval. The final steel mould was made as a sequence to these experiments and the oval glass as now turned out from it is very satisfactory. The accompanying illustration shows the pattern to half scale but it is difficult to show in a drawing the many small points material to the actual apparatus.

The chief points are the following. 1. The sides bulge out in a regular manner all along the circumference of the oval, so that the rubber fits the glass evenly and closely and there is no leakage of urine or lotion between the two. 2 A groove is provided so that the rubber can be tied on to the glass. This is unnecessary in the case of the cylindrical vessel, but in the oval pattern leakage is liable to occur unless the rubber is fastened in some way. 3 All the edges are rounded off and the base is also machined up flat so as to avoid the risk of ulceration from unequal pressure. The oval pattern is large enough to cover the very largest wound that is likely to be made and it can be applied so soon as the urine is free from blood clot, that is to say, on the second or third day after the operation. The method of its application is precisely as described in the former paper, and is now well known. The chief essential detail is to shave the skin very close. It is often noticed that the edge of the rubber disc curls up in places after it has been applied. As a rule it uncurls again of its own accord and becomes fixed to the skin. This curling up does not occur when the solution is used in small quantity and is well rubbed in, but it sometimes happens that this is impossible.

The second addition to the set of the apparatus is the provision of two separate oval pieces of sheet rubber, each measuring six inches by four inches, and having punched out in the long axis of the oval, but half an inch eccentrically, a hole of the size required for the large or the small cylindrical glass. A pendulous abdomen interferes with the application of the oval glass by reason of its size and it is far more satisfactory in these cases not to increase but to diminish the size of the *rigid* part of the dressing and to increase at the same time and to the same extent the *flexible* part—namely, the rubber. This at once solves the problem and as the rubber adapts itself excellently to all folds and wrinkles the small glass remains suspended over the wound and is efficient. A very large wound can be dressed in this way, and since the troubles of nursing these patients by the old method varied directly with the weight of the patient and the size of the abdominal wall, the latter when large being frequently coincident with a pendulous abdomen and a gaping wound, the utility of this simple addition is evident.



Suprapubic dressing, oval pattern.

In case it should be desirable for the patient to get up while he is wearing the oval glass this is also made up as a separate piece with the dome solid except for a pin-hole opening remote from the exit-tube. The risk of urine overflowing as the patient moves about is thus minimised. These cases are not common as a matter of experience, though one would expect them to be so since prostatectomy is common and the patients are generally over 50 years of age and liable to bronchitis. It is unnecessary, therefore, to enter on this part of the subject at greater length here. If the small cylindrical glass is used for this purpose the variety with a side tube in place of the hole at the top is employed so that the margin of safety from overflow may remain the same. The selection of the piece best suited to the case is a matter which anyone who understands the principles involved can make for himself without much difficulty.

There is no doubt that the dressing can be both used and abused. For instance, it is not uncommon to see the wound inside the glass remaining uncared for. Several such wounds have closed while the glass has been in place but it is probable that they would have closed sooner if they had been attended to regularly, say once a day, by means of a pair of sinus forceps or with a probe passed through the upper opening of the dressing. The caustic probe is particularly useful in this respect and is much more handy and efficient than a stick of caustic. Moreover, the ease with which the caustic can be renewed by redipping the probe in fused silver nitrate which is on the point of solidifying results in a great saving of caustic. Apart from this lack of attention to the wounds their condition is precisely what it was when they were ressed with gauze and on drying and inspecting them no fference between the two can be discovered. Then, again, e discs of rubber with the holes properly punched out and exactly the right size are more efficient than any that can e cut out by hand alone and no other quality or thickness of ibber has been found which is more efficient than that pplied. It is not uncommon to see makeshifts employed, erhaps to the discredit of the device and for lack of renewal f stock. Further trials of a few varieties of plaster show aat none approaches in respect of efficiency the present ethod of utilising a solution of rubber in naphtha, indeed, o plaster yet tried has remained in place for more than six ours without becoming soaked through. When the rubber olution becomes too thick by evaporation the addition of a mall quantity of naphtha or benzine well stirred in it will mprove it.

It is common now to perform any washing out that may be ecessary by means of a catheter introduced either through he penis or through the top of the glass, the excess lotion eing allowed to flow off through the exit tube. Patients ake their bath after the rubber tube has been detached without having the rest of the dressing removed. It is also ound that continuous irrigation of the bladder is easy to rrange. There are, however, no results from this method of treatment to record at present, but *a priori* one would expect a good deal of benefit from it in certain cases, especially in those in which phosphates are deposited in the bladder. Increased experience shows that five days and not four is the average minimum period for the dressing to remain efficient without needing attention. At the end of this time it is good practice to omit it for 12 or 24 hours, so that the skin and the wound may be well cleaned up before the dressing is reapplied, but this is by no means essential. Phosphates may be removed from the glass at the same time by soaking it in dilute hydrochloric acid. No cases of ulceration of the skin have been reported so far and in the only two cases in which the dressing failed ulceration sufficient to prevent the efficient application of the rubber solution was already present. In these two cases the device was a complete failure.

It would perhaps be as well to mention here that the common causes of overflow through the hole in the top of the glass are (1) the exit tube being at some part of its course above the level of this hole; (2) the exit tube being too long and the distal end being in consequence coiled up in the receptacle beneath the bed; (3) the exit tube being interrupted by a joint (this is unnecessary); and (4) syphonage occurring through the wool or gauze which is used to cover the top of the dressing having sagged down into the glass. No harm results from omitting this covering entirely. The dressing, unless working efficiently, is a trouble rather than a benefit to the patient, because the uncertainty renders it necessary to examine him frequently to see if he is wet and to dress his wound in both ways at once to insure his being kept dry. This means double the work. Sometimes a patient picks off the rubber in his sleep, but this is not a common cause of leakage. To cause the dressing to work efficiently certainly does demand a small amount of attention. The cause of the inefficiency is not far to seek as a rule, and when found and removed efficiency is insured and the patient remains dry with much less inconvenience and without any harm resulting so far as can be seen. The longest time so far during which the patient has remained dry from a single application of the dressing is a fortnight. When one considers that during that period by the old method the patient would have needed dressing about 100 times with a change of the draw-sheet each time, and very often with a change of his shirt as well, the practical utility of the device as a mere labour-saving machine and quite apart from the patient's comfort is obvious. The saving in cost of dressings during the fortnight would be between £2 and £3 and the saving of time to the nurse about 24 hours. The numbers of the separate pieces composing the complete set of apparatus have been revised in accordance with the demand. The various items can also be obtained separately.

In conclusion, I wish to thank all those who have reported their cases to me or who have allowed me to watch the progress of them. Such a system lends itself admirably to improvement in surgical technique, but at present the failures recorded are all too few and probably several points still remain to be elucidated as they arise.

St. Bartholomew's Hospital, E.C.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF PUERPERAL ECLAMPSIA IN WHICH THERE WAS CESSATION OF THE URÆMIC SYMPTOMS AFTER REMOVAL OF CEREBRO SPINAL FLUID.

(Under the care of Dr. RICHARD G. HEBB.)

FOR the notes of the case we are indebted to Mr. J. A. Braxton Hicks.

The patient, who was 29 years of age, was admitted on May 26th, 1906, to the Westminster Hospital. The history of the illness was to the effect that since May 16th she had been suffering from the following symptoms: œdema of the feet, legs and face; severe and persistent frontal headache; passage of scanty high coloured urine; drowsiness; and just previously to admission "fits." She further stated that she was six months pregnant and that she had had five previous pregnancies, the last ending in a miscarriage at the third month. All the labours had been instrumental but there had been no other untoward symptoms. The family history was good and there was no previous history of fits. When first seen by the house physician, Mr. J. G. Gibb at 4.45 P.M. her condition was as follows. She was very drowsy and complained of headache; there was moderate œdema of the face and legs; the temperature was 98·4° F.; the pulse was of high tension; the second cardiac sound was accentuated and the first sound was reduplicated, but no bruit or enlargement of the heart could be detected. On examination of the abdomen the fundus of the uterus was found to reach to the level of the umbilicus and the uterus contracted under the palpating hand. The uterine souffle and fœtal heart were both heard. Bimanually the cervix was found to be soft; the os admitted a finger and fœtal parts and movements were felt. The urine was high-coloured and became semi-solid on boiling. It contained much serum albumin, a little globulin, hyaline and granular casts, red corpuscles, leucocytes, epithelium, and pigment granules. At 6 P.M. she had an epileptiform convulsion, attended with much cyanosis and preceded by a cry. The right side of the body was most affected. Chloroform was administered. At 8.45 P.M. she had another convulsion. Chloroform was again given and three laminaria tents were inserted into the cervical canal. After this there was frequent vomiting and morphine was prescribed. Next day (the 27th) at 7 P.M. the patient aborted. The placenta and membranes were detached by the finger. There was very little uterine hæmorrhage after delivery. During the night the temperature rose to 99·2° but by the next morning it was 98·4° and afterwards remained normal. On the 28th she had three more convulsions, two of which were fairly severe. Dr. Hebb then decided to try lumbar puncture as had been recommended by some for uræmic convulsions. Lumbar puncture was accordingly performed and at first the cerebro spinal fluid flowed into the test tube in a continuous stream instead of drop by drop as is normally the case. The fluid withdrawn measured 38 cubic centimetres; it was found to contain no urea but it reduced Fehling's solution, giving also glucosazone crystals. From the time lumbar puncture was performed till the patient left the hospital her condition rapidly improved. The drowsiness soon disappeared and the pulse tension diminished but the first cardiac sound remained reduplicated and the second sound accentuated. By the 31st the headache had entirely disappeared. On June 1st the top of the uterus could not be felt through the abdominal wall. On this day also the breasts began to secrete; the secretion, however, was scanty and needed no treatment save an absorbent pad and bandage. The lochia were never at any time offensive or excessive and they ceased on June 8th, as did also the mammary secretions. The total amount of urine passed and the percentage of urea soon reached normal. Each day the amount of albumin grew smaller and the casts diminished in number, so that by the time the patient was discharged, on the 13th, there was only the faintest cloud on boiling and the centrifuged deposit showed only a few hyaline casts.

Remarks by Dr. HEBB.—The case, which was perforce admitted to a medical ward owing to the paucity of beds on the obstetrical side, was first seen by Dr. Bertram L. Abrahams on May 26th and after consultation with Dr. George D. Robinson it was determined to empty the uterus. Though this was successfully accomplished the uræmic symptoms persisted but soon subsided after the withdrawal of the cerebro-spinal fluid, a result in accordance with cases recorded by others. This is the first opportunity which I have had of testing the value of this procedure and judging from the result the treatment certainly deserves further trial. There is no need to descant on the theories of uræmia in connexion with this case but it seems to me that should the withdrawal of cerebro-spinal fluid be frequently found to be followed by cessation or amelioration of uræmic symptoms the chemical view which now holds the field will have to be modified. The cerebro-spinal fluid was tested for urea but none was detected; a rough estimate was also made of the globulin in the urine with the result that it was found to be minute as against the amount of serum albumin. As already noted, the cerebro-spinal fluid reduced Fehling's solution and formed glucosazone crystals when treated with phenylhydrazin and sodium acetate. It was quite pellucid when withdrawn and the centrifuged deposit showed only three or four lymphocytes to the field of a one-sixth inch objective. I am much indebted to Mr. Gibb for his skilful and successful management of the case.

ST. LEONARD'S HOSPITAL, SUDBURY, SUFFOLK.

A CASE OF "REST GROWTH" IN A FLOATING KIDNEY; NEPHRECTOMY; RECOVERY.

(Under the care of Dr. EDGAR HUNTLEY.)

ON March 16th, 1906, Dr. Huntley was sent for by a stranger to go to see his wife who, instead of passing urine, had passed blood. On his arrival he found the patient to be a stout, florid woman, 66 years of age, who had been constantly employed for the last 34 years at laundry work in all its branches. She gave the following history. Both parents lived until over 80 years of age; a brother and a sister died from pulmonary tuberculosis and one sister from "dropsy." She herself never remembered being ill enough to call in a medical man until 18 months after her marriage when she gave birth to a stillborn child of seven months. She had never been pregnant since. Her periods had been perfectly regular and never copious. The menopause took place about the age of 48 years. For the last 30 years she had had pains in her back, which were worse on stooping and were always relieved by the application of bran poultices. She never noticed any difficulty in passing urine nor had there been any marked increase in frequency of micturition nor to her knowledge had she ever before passed blood.

On examination nothing could be discovered amiss in the chest but in the abdomen there was a large moveable mass mainly lying to the right side of, and below, the umbilicus. The patient was quite unaware of its presence. There was no tenderness about it and it felt very like a hard fibroid of the uterus. Being a little uncertain as to where this blood came from the vagina was first examined but no sign of blood was there. A catheter was then passed and no sign of blood or of urine was found, the bladder being empty. Nothing unusual was found in the rectum. Considering the quantity of blood in the utensil and the presence of the above-mentioned mass Dr. Huntley advised the patient's removal to hospital with the view of watching her. She was admitted on March 19th and kept in bed. No blood had been passed from the day she was first seen up to March 24th, when more blood was passed and this time there was no doubt that it came per urethram. Up to this time albumin and casts were absent from the specimen of urine passed and the quantity of urine averaged between two and three pints per diem.

Operation.—The patient having been carefully prepared she was given A.C.E. mixture by Mr. B. N. Molineux. Before opening the abdomen the mass could be moved about in any direction and did not have any tendency to return to the spot which it originally occupied. There was no evidence of ascites. The abdomen being opened and the mass brought up to the surface a very dark blood-stained and bruised-looking mass was evident with coils of intestine adherent all over the front of it. After great difficulty, owing to adhesions, the mass was found to have a large, thick pedicle lying at its posterior aspect. At this stage it was a question whether in existing circumstances it was right to proceed further. However, as no glands could be felt and the liver being free from any deposits, the coils of intestine were gradually and carefully peeled off the mass and the vessels ligatured *en route*. This took a very long time. The pedicle was tied and the lump was removed. It was only then that it became certain that the tumour was a kidney with a very large growth springing from it. There being now very little hæmorrhage the abdomen was closed, all clots being sponged out, and the left kidney was noted in place and feeling normal in size and consistence.

The patient made a most uneventful recovery and left the hospital for a convalescent home on April 24th. On her return three weeks after she was extremely well and had put on nearly ten pounds in weight.

Remarks by Dr. HUNTLEY.—As we were quite uncertain as to the nature of the growth springing from the kidney, and as I personally had not seen anything like it before, it was decided to send the whole mass for examination to the Clinical Research Association. In due course the report received was to the effect that the mass was a true adrenal rest carcinoma. Being somewhat rare, and Guy's Hospital Museum only containing one or two such specimens, the mass was halved, one portion being placed there and the other being kept here. So far as I can ascertain there is no mention of a like growth occurring with a floating kidney, but the mobility was in some respects a help at the operation, in so far as making it easier for removal. Should the mass have been fixed in the ordinary position it would have been most difficult to remove through a lumbar incision owing to the large size and many adhesions and the tearing of important structures almost inevitable. As it was I had plenty of room.

My task was much facilitated by Mr. Molineux's help as anæsthetist and by that of the nursing staff who acted as my dressers.

Reviews and Notices of Books.

A Text-book of the Practice of Medicine. BY JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College; Physician to the Medico-Chirurgical Hospital, Philadelphia. Illustrated. Seventh edition, thoroughly revised. London and Philadelphia: W. B. Saunders Co. 1905. Pp. 1279.

THIS text-book is probably better known in the United States of America than in this country but the fact that a seventh edition has been called for is sufficient proof that the efforts of the author have met with well-merited success. The work is intended to introduce the student to the present state of knowledge of medicine in general; especial emphasis, however, is laid on points affecting diagnosis and treatment. The differential diagnosis in many instances has been tabulated. There are 56 such tables scattered through the work and they will be found useful for rapid reference. The majority of the tables are full and accurate but occasionally omissions occur. In considering the diagnosis of disseminated sclerosis, for instance, paralysis agitans, locomotor ataxia, and hereditary ataxia are tabulated as presenting certain similarities to disseminated sclerosis, and the differential points are carefully stated. Syphilis of the central nervous system is also mentioned as being liable to give rise to diagnostic errors. On the other hand, the condition most likely to be mistaken for disseminated sclerosis—namely, functional disorder of the central nervous system—is not mentioned, nor is general paralysis of the insane.

For this edition the whole work has been thoroughly revised so as to include the more recent advances that have been made in medical knowledge. Certain new subjects have been introduced, such as myasthenia gravis and Rocky Mountain spotted fever, a disease which has been known for many years in the valley of the Bitter Root River in Western Montana and which has also appeared in Rock Creek and Bonito and in the valleys of streams situated in the mountainous sections of North-Western Nevada, Southern and Western Idaho, and in Northern Wyoming. Paragraphs have also been added on pseudo-tuberculosis, benign cirrhosis of the stomach, intestinal calculi, and the Adams-Stokes syndrome. Important additions have been made to the account of diseases which prevail principally in tropical and sub-tropical regions.

The book is well printed and there is a full index. We have no doubt that the present edition will meet with the popularity which has attended its predecessors.

The Operating Room and the Patient. By RUSSELL S. FOWLER, M.D., Surgeon to the German Hospital, Brooklyn, New York. Fully illustrated. London and Philadelphia: W. B. Saunders Company. 1906. Pp. 172. Price 10*s.* net.

THE author describes the conditions and arrangement at the hospital with which he is connected, and he appears to think that any different arrangements must be faulty. To our mind a rather large number of assistants appear to be thought necessary for an operation. Thus there are four operating-room nurses, which in addition to the anæsthetist and the anæsthetist's special nurse and an operating-room orderly make up quite a crowd. The operating staff consists of the operator, his adjunct, the house surgeon, and the senior assistant. Thus there are apparently 11 persons required for an operation. The author seems to be very fond of having furniture and basins and tables wiped with a solution of perchloride of mercury. Has he any proof that this wiping with an antiseptic has any advantage over simple cleansing? For anything that can be boiled boiling is far preferable to all other means of sterilisation. The lists of instruments for various operations are likely to prove useful. We are told that anesthal is "a chemic combination of ether, chloroform, and ethyl chloride"; we should be glad to know the evidence that it is anything more than a mixture. It sounds rather curious to be told that the required amount of ethyl bromide should be "poured into a small graduate."

The Microscopy of Vegetable Foods, with Special Reference to the Detection of Adulteration and the Diagnosis of Mixtures. By ANDREW L. WINTON, Ph.D., with the collaboration of Dr. JOSEF MOELLER. With 589 illustrations. London: Chapman and Hall, Limited; New York: John Wiley and Sons. 1906. Pp. 701. Price 31*s.* 6*d.*

THE identification of food products of vegetable origin by the microscopic structure and micro-chemical reactions of their tissues and cell contents is a branch of analysis which is somewhat neglected in this country although the application of the microscope to the diagnosis of foods and drugs so often proves a valuable aid to the detection of adulteration. Readers of THE LANCET will recall the revealings of the microscope in regard to the adulteration of food by THE LANCET Sanitary Analytical Commission in 1850 instituted by the founder of this journal. At that time, indeed, the microscope did more to lay bare the extensive adulteration that was being practised than did the test-tube. For all that, the modern analytical curriculum does not appear to attach that importance to microscopical methods of differentiation which we should have thought their value demanded. There are signs, however, of an awakening in this direction and English scientific literature, formerly so short of practical works on the subject, is, we are glad to find, being enriched with works on vegetable histology both in its pure and applied aspects. To the works of Hassall and Greenish, amongst others on the subject, we must now add the book before us which we estimate at once as so far the best, as it is the most comprehensive, contribution in the English language to the literature of the histology of vegetable foods.

As is acknowledged in the preface, the work is closely affiliated with the second edition of Moeller's "Mikroskopie der Nahrungs- und Genussmittel," which was published about a year ago with the collaboration of Dr. Winton who is in charge of the analytical laboratory of the Connecticut Agricultural Experiment Station. Thus, the description of the individual leaves, flowers, barks, roots, and edible fungi, with few exceptions, are translations of Professor Moeller's text and no less than 350 illustrations are due to the same source. The work is divided into ten parts, the first dealing with reagents, apparatus, the preparation of materials for examination, the histological elements (tissue and cell-contents), and the morphology of organs. The real business of the book is commenced in the second part, entitled "Grain: its Products and Impurities." Then follow chapters on oil seeds and cakes, legumes, nuts, fruit and fruit products, vegetables, alkaloidal products and their substitutes, spices and condiments, and commercial starches. A very valuable feature of these chapters is the profuseness and excellence of the histological and morphological illustrations which will be of the greatest assistance in the quest for foreign additions or adulterants. Apart from the food analyst, the agricultural chemist, or the pharmacist, the medical man will appreciate those chapters which throw light upon the methods of identifying vegetable substances in, for example, the contents of the stomach or in the dejecta. Throughout the directions are thoroughly practical. We think we have indicated enough to justify our cordial commendation of this latest and valuable addition to analytical literature.

Secrets of Lawn Tennis. By F. W. PAYN. London: L. Upcott Gill. 1906. Pp. 176. Price 2*s.* 6*d.*

IN this little work on lawn tennis Mr. F. W. Payn, a well-known exponent of this popular pastime, descants at considerable length, and with much acrimony, on the subject of diet, and at less length and with less acrimony, but probably with more knowledge, on the manner in which the game of lawn tennis should be played. It is unlikely that many authorities will disagree with the advice which the author offers on such questions as "passing strokes," "the stop volley," "the shoulder stroke," and the "follow through," questions which constitute for the most part the secrets which are divulged by Mr. Payn, but, nevertheless, when he enters into scientific explanations even on these very matters, in which he doubtless has great practical experience, we at once find ourselves in very serious disagreement with him. For instance, when he speaks of the "shoulder stroke" he compares the movements of the arm and racquet to the action of a lever of the third class, in which the fulcrum is at the shoulder-joint, the weight at the point of impact with the ball, and the power at some point apparently on a line which is formed by producing the axis of the arm through the body towards the opposite shoulder. Mr. Payn should study the anatomy and mechanics of the shoulder girdle before he identifies himself with ridiculous statements of this kind. We find the same fault with those parts, and they form the major portion, of the book which refer to the subject of diet. The general views in their practical relationships are, in our opinion, quite sound, but the theoretical and the scientific parts are little less than twaddle. On the subject of fatigue and "fitness" Mr. Payn writes at considerable length, but he devotes himself too exclusively to the muscular side of the question; the nervous side is relegated to a very subordinate position. "Fitness" cannot be secured by feeding muscles even on an ideal dietary; there is a very decided limit as to what food can do. Provided that the other factors in the environment are of the best possible character, there can be no doubt that neuro-muscular efficiency can be raised to a very high standard of efficiency on a vast number of food combinations which may or may not coincide with the views of different food specialists or food faddists. But neuro-muscular efficiency is, and must be, impaired by every variety of intoxication, whether of endogenous or exogenous origin, and to this condition gross errors of diet, indigestion, and over-stimulation of all kinds must clearly contribute; but to imagine that fitness can be secured and fatigue prevented by adhering to any one particular line of dietary is manifestly absurd.

Mr. Payn is very hard on some of the best known writers, on dietetics who disagree with him on the question of proteid metabolism. He appears to think that if man cannot live without meat at least he is all the better for a very restricted proteid intake; indeed, he even goes so far as to quote authorities in support of the statement that oleaginous principles of food can be built up in the animal economy and gradually converted into nitrogenised principles by combining with atmospheric nitrogen, and he thinks that this sort of process has taken place in his own body after a hard game of lawn tennis when six or seven pounds loss in weight has been made good by a nitrogen-free diet such as he enjoins. It does not appear to occur to this authority on dietetics that a large part of the loss in weight may have been due to a loss in water and of reserve stores of fat and glycogen and that the dissipation of fatigue, from which he so rapidly recovers under this *régime*, may be due to the physiological influence of rest.

Although, perhaps, we have been almost as severe in our criticism of the author as the author has himself been on several eminent medical authorities, nevertheless we must admit that the "Secrets of Lawn Tennis" is a very readable little book and that the practical hints on play will probably be most useful to those concerned.

LIBRARY TABLE.

Course of Instruction in Operative Surgery in the University of Manchester. By WILLIAM THORBURN, B.S. Lond., F.R.C.S. Eng., Lecturer in Operative Surgery. Manchester: At the University Press. 1906. Pp. 75. Price 2*s.* 6*d.* net.—This is a volume of the medical series of the publications of the University of Manchester and as it gives the regulations in use in the operative surgery class there it is obvious that it is primarily intended for local use, but it can be used with any operative surgery class. The book is based on notes which the author has been in the habit of providing for his class for each day's work. They tend, he finds, to the smooth and rapid working of the class and therefore he has published them. He tells us that these notes are only intended to draw the students' attention to the main points of the operation to be performed and are not intended to replace any of the ordinary text-books on operative surgery. This explanation by the author disarms criticism and for the purpose intended the book should prove useful. Space is provided for notes by the student but we doubt very much if the average student will use these blank sheets.

Portfolio of Dermochromes. By Professor JACOBI of Freiburg in Breisgau. English adaptation of text by J. J. PRINGLE, M.B. Edin., F.R.C.P. Lond., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Supplement containing 76 additional coloured illustrations. London: Rebman, Limited; New York: Rebman Company. 1906. Forty plates; pp. 72. Price, loose plates, 25*s.* net; half roan binding, £1 8*s.* 6*d.* net; full roan binding, £1 11*s.* 6*d.*—The previous volumes of this work were excellent examples of colour printing and this supplement is no whit behind them in quality of production. The plates are taken from wax models and they represent very accurately the morbid conditions. The four-colour process employed is a very definite advance on most three-colour methods and it is difficult to see how the results can be surpassed. The English adaptation of the text by Dr. Pringle is admirably done.

National Conference on Infantile Mortality. Report of the Proceedings of the National Conference on Infantile Mortality, held in the Caxton Hall, Westminster, on June 13th and 14th, 1906. Westminster: P. S. King and Son. 1906. Pp. 314. Price 1*s.* 6*d.* net.—The report of this national conference, over which the Right Hon. John Burns presided and of which Mr. Evan Spicer, the chairman of the London County Council, was the chairman, contains much of real interest to the community. The idea of the conference originated among the British delegates to Paris in October, 1905, who attended the International Congress on the Functions of Infants' Milk Depôts. So deeply impressed were the British visitors with the vigour with which France is attacking the question of infantile mortality and so great seemed to them the contrast which this presented with the apathy towards the question existing in this country that a requisition was prepared and addressed to the representatives of certain corporations suggesting that they should take steps to convene a national conference on the subject. The conference of which this volume is a record is the outcome of that requisition. A public recognition of the excessive infantile mortality has now been obtained and of the fact that although some of its causes need little more than recognition in order to be removed, in essence it arises from causes which lie deep in the social and economic conditions of the people. The book contains a list of the office-bearers and members, the President's inaugural address, and the following papers: 1. The Teaching in Schools of Elementary Hygiene in Reference to the Rearing of Infants, by Dr. James Niven. 2. The Appointment of Qualified Women, with Special Reference to the Hygiene and Feeding of Infants, by Dr. J. Spottiswoode Cameron. 3. The Public Supply of Pure or Specially Prepared Milk for the Feeding of Infants, by Dr. G. F. McCleary. 4. Premature Birth in Relation to Infantile Mortality, by Dr. J. R. Kaye. 5. Alcoholism in Relation to Infantile Mortality, by Professor G. Sims Woodhead. 6. Ante-natal Causes of Infantile Mortality, including Parental Alcoholism, by Dr. J. W. Ballantyne. 7. The Teaching of the Hygiene of the Expectant and Suckling Mother, by Dr. John F. J. Sykes. 8. Earlier Notification or Registration of Births, by Alderman B. Broadbent, Mayor of Huddersfield. 9. Memorandum on the Earlier Registration or Notification of Births, by Dr. E. W. Hope. 10. Infant Life Insurance, by Councillor W. F. Anderson. 11. Infantile Mortality and Life Insurance, by Mr. F. Schooling. 12. Infant Mortality and the Employment of Married Women in Factory Labour Before and After Confinement, by Dr. G. Reid. 13. The Regulation of the Placing of Infants out to Nurse, by Dr. S. G. H. Moore. 14. The Amendment of the Infant Life Protection Act, by Dr. A. Greenwood. 15. The Chemistry of Infant

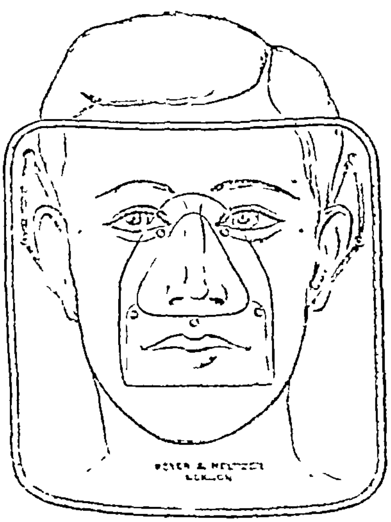
Foods, by Mr. J. Knight, D.Sc. 16. Increase of the Powers of Local Authorities with Regard to Milk-supply, by Dr. A. K. Chalmers. 17. The Operation of the Midwives Act in England, with a view to its Extension to Scotland and Ireland, in Relation to Infantile Mortality, by Dr. Margaret M. Smith. The papers were followed in turn by a series of resolutions.

Questions and Answers on Nursing for the St. John Ambulance Associations, and Others. By JOHN W. MARTIN, M.D. R.U.I. Fifth edition. London: Baillière, Tindall, and Cox. 1906. Pp. 138 Price 1*s.* 6*d.* net.—In this, the fifth, edition of this little book a change has been made in the type in which the questions and answers have been printed; by the change the author hopes the reader will be helped in fixing both more easily in his memory. The book has been revised and some additions have been made. The author has adhered closely to what is required by the St. John Ambulance Association in the examinations conducted under its auspices. Many of those who are studying nursing will find the book helpful in fixing points of importance and interest upon their memories. It is a useful work. On p. 78, in the answer to the third question, we suppose the word "teacup" is wrongly printed for "teapot."

New Inventions.

FACIAL PROTECTIVE MASK.

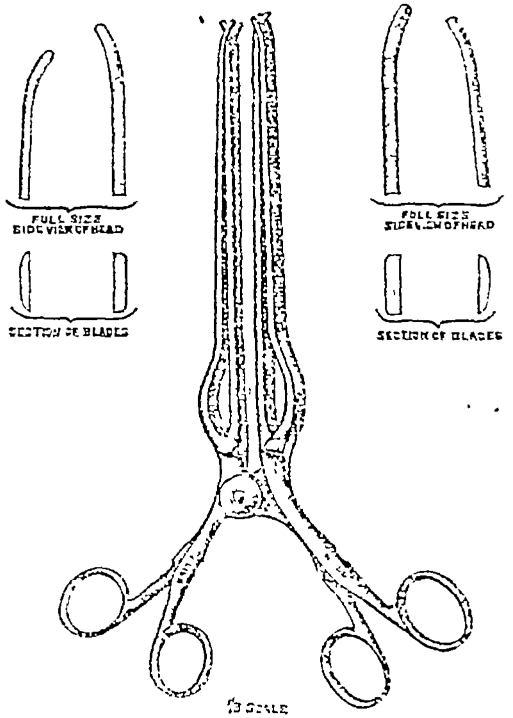
THE frequent liability which those engaged in throat work incur of having the face spat upon and bespattered with visible and invisible expectoration and the toleration with which this has been endured by the faculty would almost persuade one that such can always occur with impunity. It is obvious, however, that the risks of contracting the foulest disorders while examining and treating many pharyngeal and laryngeal affections are great and many. The apparatus that have from time to time been invented to minimise these dangers have never been universally adopted because of their expensiveness, clumsiness, and awkwardness for ready, quick adjustment. I have found this facial protective mask efficient, and so easy of application that it accomplishes the objects desired. Being composed of mica it is sufficiently light and transparent and can be washed and sterilised by boiling. It is very easy of adjustment, since it is simply looped over the ears by means of two elastic bands. The mask has the additional merits of durability and cheapness. Messrs. Mayer and Meltzer, 71, Great Portland-street, are the makers.



W. STUART-LOW, F.R.C.S. Eng.

NEW GASTRO-ENTEROSTOMY CLAMP.

THE accompanying illustrations show a new pattern gastro-enterostomy clamp which Messrs. Weiss and Son, Limited, of 287, Oxford-street, London, W., have made from my drawings. The clamp is a twin clamp and consists of two forceps; each forcep consists of a male and female blade. The male blade is straight and fits by an easy mechanical contrivance into the female. Both blades are grooved longitudinally, so that when they are closed they take a firm grip of the mass of tissue between them and do not in any way injure it—in fact, they do not even mark the tissues. The female blade has a double curve, a long one reaching from the tip to the beginning of a short, sharp curve. The length of this long curve is five inches and its outer surface is marked off in a quarter-inch scale, by means of which the length of the incision in the stomach and bowel can be exactly measured, a point of the greatest importance as regards the neatness of the operation. The length of the clamp is about 11 inches. When the blades are closed on the mass of stomach or bowel the female blade presses the tissue against the male blade (there is no compression); it perfectly steadies the tissues and acts also as a hæmostatic forceps. When the forceps are opened for removal there is no tension on the three lines of suture already introduced, and the obtuse angle which the handles make with the blades gives room for both sides of the anastomosis to be examined with the forceps in position, which cannot be done with the twin forceps in which the blades are straight. I claim the following advantages for this clamp over those at present in use. These various points are well shown in the illustrations. (1) It is lighter and can be used without rubber coverings; (2) it acts as a hæmostatic forceps; (3) the inch scale enables the incisions to be measured accurately; (4) the bent position of the handles allows all parts of the anastomosis to be examined while the clamp is in position; (5) opening each blade of the forceps does not put the sutures on the stretch as some of the present modes do; and (6) it can be used for any sort of entero-anastomosis as well as gastro-enterostomy. I have to thank Messrs. Weiss and Son for the very careful way in which they have carried out my designs and suggestions.



T. GELSTON ATKINS, M.D., M.Ch. R.U.I.,
Surgeon, Cork South Infirmary.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT TORONTO.

(From our Special Correspondents.)

THE SECTIONS.

ANATOMY.

Tuesday, August 21st.

The President of this Section was Professor **Arthur Robinson** (Birmingham) who delivered an address on

The Study and Teaching of Anatomy.

He said that there were systems of teaching anatomy which tended to obscure the wide scientific interest of the subject and to reduce it to a merely technical standard. This technical aspect was tending to become even more prominent owing to the increased demands which were made upon the student's time. Fortunately, there had always been in the medical profession many broad-minded men who had recognised that the man who had a wide knowledge of general principles was better adapted to meet unexpected circumstances than one who was merely provided with the memory of a certain number of observed facts, and fortunately the opinions of their broader-minded colleagues had hitherto prevailed. The result had been that in a large number of well-equipped medical schools and medical departments of universities the teaching of anatomy had passed into the hands of specialists —that is, into the hands of men who had spent the greater part of their lives in the study of the subject, and who were enthusiasts in its teaching, looking upon man as the highest outcome of nature and considering him and his relations as worthy of the most careful study. Still, though this was a movement in the right direction it must be borne in mind that there was a danger that specialists sometimes might lose sight of the practical applications of their subject and work at, and teach only, its more scientifically accurate features. The danger would be avoided if the electing bodies of teaching institutions would elect only those men who had been through the medical curriculum and who understood the needs of the profession and of the students, and if the men thus appointed would keep in touch with their colleagues who were practising the art of medicine and surgery. The object of a medical curriculum should be to give the men passing through it a wide knowledge of the principles on which they must rely in the practice of their profession, a sufficient knowledge of the details, and finally an understanding of man's place in nature and his relationship to nature's general laws. It should therefore be the object of anatomists to avoid entangling medical students with a superfluity of detail. They should insist upon a sound knowledge of the general relations and arrangements of the more important organs and parts of the body and a good knowledge of the general principles which underlie these relationships. They should endeavour to make their students acquainted with the general laws of growth and development, and carrying on the work done in the biological department, they should draw attention to man's relations to other animals in all cases where such relations were evident and were instructive of the methods by which man had been evolved. In conclusion Professor Robinson remarked: "I would strongly urge that if we wish to do well for our medical students and the medical profession as a whole we should deal more with general principles and less with detail than has generally been the case in the past."

Professor **J. Playfair McMurrich** read a paper entitled

A Preliminary Note on the Valves of the Iliac Veins.

He said that he had found that in a certain percentage of 30 cases examined valves were present in the external iliac veins. The valves varied both in number and completeness. In the common iliac vein, near its termination, there was a tendency to fusion of its anterior and posterior walls, and in one case along this line of fusion perforation of the adherent walls had occurred so that the vessel was divided into two parts for a short distance. It was suggested that both the valves in the external iliac vein and the fusion of the walls in the common iliac vein might have some influence in causing thrombosis.

The **President** remarked that possibly the high percentage which Professor McMurrich had found would have to be modified later, for in six cases which he had specially examined no valves were present.

Professor **G. Carl Huber** (Michigan) demonstrated with lantern slides

The Origin of the Arteriæ Rectæ of the Mammalian Kidney.

He showed that all the arteriæ rectæ were efferent branches of glomeruli. This was important in that they now knew that all the blood passing to the different parts of the uriniferous tubules was blood that had first passed through the glomeruli, therefore altered blood, a point which physiologists must take into consideration in discussing the secretory activity of the kidney tubules.

Professor **Huber** then exhibited a second series of slides showing

The Form of the Uriniferous Tubules of Certain of the Lower Vertebrates.

The character of the duct system and the form of the uriniferous tubules of different forms of reptiles (turtle, snake, lizard, and alligator) were discussed. As there was no pelvis in the reptilian kidney the ducts were easily worked out by injection. The form of the tubule was ascertained by the wax-plate reconstruction method. The tubule in all the forms studied consisted of a small Malpighian corpuscle, a short neck, a simple proximal convoluted portion, a short narrow segment with low epithelium, and a portion which might be known as a distal convoluted portion —facts similar to those found in the mammalian tubule, although there was no loop of Henle.

Professor **McMurrich** suggested that the corrosion method employed by Professor Huber might with advantage be applied to work on other organs.

Professor **H. H. Donaldson** (Chicago) then read a paper on behalf of Dr. **S. Walter Ranson.**

On the Architecture of the Spinal Ganglion.

He described how on the section of the dorsal ramus of the second cervical nerve of the white rat—which contained about 87 per cent. of all the afferent fibres belonging to this spinal nerve—it was found that the subsequent chromatolysis affected more than 80 per cent. of the 8000 cells in the associated ganglion. Two months after the operation it was found that some 4200, or 52 per cent., of the cells had degenerated and disappeared. The disappearing cells were for the most part those of small diameter. This loss of cells followed a section of from 1500 to 2200 medullated fibres and hence the fact that from two to three cells disappeared as the result of cutting each medullated fibre called for explanation. The most plausible hypothesis was that these degenerating cells were represented in the nerve by unmedullated fibres and degenerated as the result of the section of these fibres. The search for these hypothetical fibres was in progress. Under the title "Retrograde Degeneration in the Spinal Nerves," the principal data had been published in the *Journal of Comparative Neurology and Psychology*, vol. XVI., No. 4, 1906.

Professor **Huber** and other members joined in the discussion.

Dr. **R. R. Bensley** then gave the results of his work on three subjects, the first of which was

The Structure of the Cardiac Glands of Mammals and their Phylogenetic Significance.

From the study of the so-called cardiac glands in various mammals Dr. Bensley had come to the conclusion in 1903: 1. That the cardiac glands are mucous glands. 2. That the cells of the cardiac glands are fundamentally different from the chief cells of the body of the fundus gland, inasmuch as the latter contain two characteristic substances recognisable by staining and micro-chemical reactions, which are the chemical antecedents of their secretion—namely, the zymogen granules and the prozymogenic basal filaments. Both of these substances are absent from the cells of the cardiac glands. 3. That the cardiac gland cells are closely related to the mucous chief cell of the neck of the fundus gland and to the pyloric gland cell. 4. That the cardiac glands are decadent or retrogressive structures derived from fundus glands by the progressive disappearance of their most highly differentiated elements, the chief cells of the body of the gland and the parietal cells. In two recent articles Haane had arrived at conclusions which were the exact opposite of Dr. Bensley's—namely, that the cardiac glands were non-muciparous structures which differed from the fundus glands and from the pyloric glands and which were physiologically important, inasmuch as they secreted an amolytic ferment. The work on which this paper was based had been undertaken with the object of determining which of these conflicting views was correct and had, Dr. Bensley considered, fully confirmed the conclusions at which he had previously arrived. That the cardiac glands were mucous glands was evidenced by the fact that in every case examined the secretory contents of the cells of these glands was stainable with muchæmatein and with mucicarmine, and, further, the gradual transition in the type of cells between the foveolæ and the bottom of the gland indicated a close relation between the cells of the surface epithelium and those of the gland which would lead one to suspect their mucous properties even if the confirmatory stains could not be obtained. That Haane was unable to stain the cells of the cardiac glands of the pig with muchæmatein and mucicarmine was, Dr. Bensley believed, probably due to difference in technique, as he himself was always able to get positive results. In discussing the results obtained by Haane in the cardiac glands of the ox, sheep, and goat respectively, the fundamental question to be answered was that dealing with the homogeny of these structures. For if the glands occupying the area between the psalterium and glandular portion of the stomach had been derived from the same antecedent structures by the operation of the same factors, then the differences which might be observed between them were not fundamental in nature.

The second subject considered by Dr. BENSLEY was

The Cytological Characters of the Cellular Components of the Islands of Langerhans.

Dr. Bensley and Mr. Lane were of the opinion that the cells composing the islands of Langerhans were definite and quite distinct from the alveolar cells. In the pancreas of the guinea-pig chromophile cells were present which stained with neutral gentian. These cells were large and somewhat branched; the nucleus contained nucleoli which were oxyphile. The ordinary cells of the islets were clear. In rodents and ungulates these cells were fairly abundant and could easily be distinguished by their type of nucleus from the centro-acinar cells.

Professor HUBER remarked that it was possible to distinguish the alveolar cells by ligaturing the pancreatic duct and thus producing changes in these cells.

The third subject discussed by Dr. BENSLEY was

The Structure of the Lacrymal and Harderian Glands of Mammals.

He described the character of the cells in different parts of the gland tubules of the ox and sheep. By employing different methods of staining several types of cell could be distinguished. Near the duct the cells were small and granular, at a point nearer the fundus of the gland the cells were larger and more complex, while the cells at the bottom of the alveolus were still more complex, notwithstanding the fact that the lacrymal secretion was chemically a very simple fluid. The specimens were stained with "neutral gentian" and other reagents.

Professor DONALDSON drew attention to the cells of the ependyma in the cerebral ventricles which also secreted a simple fluid and were very similar in structure. He remarked also that the nucleus in these cells shifted its position after birth.

WEDNESDAY, AUGUST 22ND.

The proceedings were opened by a paper read by Professor A. MELVILLE PATERSON (Liverpool) on

The Ligamentous Supports of the Pelvic Viscera.

He remarked that from observations on the human subject, living and dead, and by dissections of various mammals, it was apparent that the accepted description of the pelvic fascia and of its relations to the pelvic viscera was altogether erroneous. Both in the male and the female the rectum was wholly unconnected with the pelvic fascia down to the anal canal. It occupied a rectal channel and was enveloped by a dense layer of extra-peritoneal tissue devoid of fat. The rectum was thus able to distend and to collapse without being affected by the conditions of the genito-urinary organs. The genito-urinary organs (prostate in the male, urethra and vagina in the female) were fixed and suspended by a bilateral suspensory ligament which swept forward from the ischial spine and split to inclose the organs. On each side these organs lay in contact with the levator ani and the fascia covering its pelvic surface. The bladder in both sexes and the uterus in the female were intra-pelvic organs. This suspensory ligament was highly vascular. On each side it was provided with a channel for the vesical vein; anteriorly the fascia was split into several layers by the prostatic plexus and the free crescentic fold of the fascia was particularly vascular on account of the accumulation of veins passing to join the internal iliac veins. The vessels were contained in sheaths among the layers of the fascia, and not between the fascial sheath and the prostatic capsule. The layers of the suspensory ligament were upper and posterior. The upper layer was traceable in continuity with the lateral and anterior true ligaments of the bladder. The posterior layer passed between prostate (or vagina) and rectum and was attached to the perineal body at the base of the triangular ligaments.

Professor W. S. MILLER read a paper on the Distribution of Lymphoid Tissue in the Lungs.

Dr. DAVID WATERSTON (Edinburgh) read a paper entitled

A Preliminary Note on the Brain and Skull in Mongolism.

He briefly pointed out the principal features, clinical and anatomical, which were distinctive of the condition of congenital imbecility known as mongolism. The examination of a series of brains and of an entire skull showed certain distinct and characteristic changes. The cerebral hemispheres were, in all, large and well convoluted. The orbital surface of the frontal lobe remained very oblique, however, instead of becoming nearly horizontal in position, the insula was not completely covered over by the opercula, and the first temporal convolutions remained small and failed to share the general cerebral development. The cerebellum, medulla, and pons Varolii were usually small in proportion to the cerebrum. The changes in the skull were described and analysed.

Professor DONALDSON called attention to the fact that during the later months of intra-uterine life the relative weight value of the cerebellum and brain stem increased and that the percentage value of these portions might indicate the age at which the normal growth processes had been first disturbed.

Professor C. R. BARDEEN gave a lantern demonstration illustrating

The Development of the Ova of the Toad, Fertilised by Spermatozoa which have been exposed to Roentgen Rays.

He said that ova which were fertilised by spermatozoa which had been exposed to the x rays, apparently developed in the early stages normally, no alteration being observable in the method of segmentation. At the time when the embryo was beginning to take form, marked differences were to be noted in the development of the central nervous system, the sense organs, and in the vascular system, and not infrequently monsters were developed. The results of the experiments showed that the spermatozoa might be affected by external conditions. If spermatozoa were removed from the body they usually lost their power of fertilisation within a few hours. If exposed to x rays this power was lost earlier. Speaking generally, the effects were observable chiefly in those organs in which the cells underwent the highest differentiation.

Dr. BENSLEY, Professor PRIMROSE, and Professor DONALDSON joined in the discussion.

Dr. G. L. STREETER (Baltimore) gave a brief report on

Some Experiments on the Developing Ear Vesicle of the Tadpole.

He described the development and behaviour of tadpoles following unilateral and bilateral removal of the ear vesicle and acoustic ganglion. At the time of operation the larvæ were three millimetres long; they were then followed in their growth up through the metamorphosis. The results of these experiments demonstrated that in tadpoles the ear vesicles were the essential factor in equilibration and secondly one ear vesicle was capable of performing the work of both, but when both were removed no other organ was able to compensate for their loss. The ear vesicle when transplanted to some other part of the body continued in its histological development but gave no evidence of establishing functional relations with the brain.

Dr. GEORGE J. JENKINS (London) read a paper on

The Morphology of the Hip-joint.

He stated that in the human embryo up to 2·7 centimetres in length there was a primitive acetabulum formed of ilium and ischium, the os pubis being kept out of the fossa by a mass of prechondral mesoblast. Eventually the os pubis formed part of the acetabular cavity as in the adult. There were three membranous defects in the margin of the cartilaginous acetabulum. The ischio pubic defect was partially obliterated by the growth of ischium forming the floor of the cotyloid fossa. The ilio-pubic and ilio-ischial notches were almost entirely obliterated by growth of the iliac cartilage. The growing margins of the cartilages were indicated in a reconstruction model of the joint in a 3·2 centimetre embryo by ridges. In the 1 8 centimetre embryo the head was represented by a prechondral cap on the upper end of the chondrified shaft. There was a relatively large flattened area on the head which was in the morphological position of the impression for the ligamentum teres of the adult. The capsule of the joint in the adult consisted of true and false capsules. The latter was derived from extra capsular structures. The true capsule of perichondral origin consisted of two parts, a primary part which was attached about the margin of the primitive acetabulum and a secondary part which was formed when the os pubis had advanced into the joint. The ligamentum teres was a part of the primary capsule and contained only a small amount of extra-articular tissue. The retenacular bands were formed in association with three groups of nutrient vessels passing to the head of the femur. The antero-inferior and postero-inferior bands had an origin in the mass of loose tissue found on the inferior aspect of the neck in young embryoes. The cells of the synovial membrane were derived from extra-articular mesoblast and invaded the skeletogenous mesoblast in a layer several cells thick. Up to the time of the invasion the anlage of the innominate bone was continuous with that of the femur and this invasion of external mesoblast might be regarded as the means of separating the innominate bone from the femur.

Dr. R J. GLADSTONE (London) gave a description of

A Symmelian Monster (Sympus Dipus).

He said that the two lower limbs were fused so as to form a single median lower limb. Each lower limb was rotated outward so that the patella was behind and the heel directed forward. The peroneal borders of the two lower limbs were fused along the middle line of the composite limb. There was an imperforate penis but no anus. The colon ended in the urinary bladder; there was thus a persistence of the cloacal stage of development. The kidneys and ureters were absent but the suprarenal bodies were present and had the normal histological structure. The main artery of the abdomen divided into a large artery which passed into the umbilical cord and a vessel which ran down the front of the vertebral column and divided into external iliac arteries. The renal arteries were absent. The innominate bones were dislocated from the sacrum and bent forward. They were united together by their posterior borders. The tuberosities of the ischia and the ischial and pubic rami were also fused, so that there was no perineal region and consequently no anus or urethra. Dr. Gladstone believed the condition to be due to a fusion of the post-axial borders of the limb buds over the cloacal area.

Professor O. J. PATTEN (Sheffield) gave a lantern demonstration on

A Series of Gorilla and Chimpanzee Skulls.

He demonstrated variations in the contour of the face and cranium in the chimpanzee and gorilla at different ages. In the chimpanzee the face might be narrow or broad. The males on an average were broader in the face than the females, but this was by no means a safe guide in distinguishing the sex. In broad-faced forms of this ape the lateral horizontal diameter of the orbit often exceeded the vertical, and the supraciliary ridges were on the whole more strongly developed. In the gorilla, most of the skulls, with the exception of adult males, had a vertical diameter of the orbital rim slightly exceeding that of the lateral horizontal diameter. In the skulls of young gorillas there were several distinctive characters by which they differed from adult skulls, notably in the breadth between the parietal eminences and in the length between the external angular process and the external occipital protuberance.

Dr. ROSS E. HARRISON read a paper on

The Development of the Nerve Elements in Vertebrates

Two main questions had to be solved: (1) Is the constitution of a nerve unicellular or multicellular? and (2) If unicellular, whence is the nerve fibre derived? Dr. Harrison first drew attention to the futility of attempting to solve these questions entirely by embryological methods, and to the necessity of experiment. Any part of a nerve might be removed or transplanted, and thus the environment of a nerve might be altered. From experiments, such as removal of the neural crest on one side in an early stage of the development of the central nervous system, Dr. Harrison concluded that the nerve was an outgrowth of the ganglion cell and that the sheath cells took no part in its development. If a portion of the spinal cord was transplanted nerves would grow out from it into mesenchymatous tissue. A limb bud might be transplanted from the body of one embryo to that of another; it would then acquire a system of nerves which was similar in its distribution to that of the normal limb. The nerves which connected the transplanted limb bud with the central nervous system were very small. It was found possible to examine under an immersion lens the cut ends of a nerve which had been divided. The ends were seen to come together and unite in about 24 hours; degenerative changes took place in the peripheral nerves but if a connexion was established between the cut ends within 72 hours the degenerative changes were arrested.

The PRESIDENT, Professor MCMURRICH, Professor DONALDSON, and Professor BARDEEN joined in the discussion which followed.

Professor THOMAS G. LEE (Minnesota) read a paper on

The Early Development of Geomys Bursarius.

He said that geomys was a genus of small rodents belonging to the family geomyidæ, all members of which family were peculiar to North America. Geomys bursarius, or the "pocket gopher" as it was commonly called, was found in the Mississippi valley, lived under ground, was strongly photophobic, rarely came to the surface, and was characterised by large cheek pouches which opened externally. Professor Lee, after several years of collecting, had succeeded in obtaining an unbroken series of pregnant uteri in all stages of development. Many of the following points were peculiar to geomys and differed from corresponding stages so far described for any other mammal, while in other features geomys showed many resemblances to several of the other rodents. 1. Geomys developed entirely outside the uterine cavity in a decidual cavity formed in the ventral portion of the uterine mucosa. In this it resembled the guinea-pig among rodents and also resembled the human development. 2. The blastocyst at the time of the perforation of the uterine epithelium was rather large. It was didermic, consisting of the trophoblast, which was continuous with the margins of the germinal area, and of an entodermal vesicle which nearly filled the blastocyst. Rauber's layer would seem to be lost at the time of, or shortly after, perforation. 3. The decidual cavity was formed by contact of the trophoblast with the ventral portion of the uterine mucosa, this bringing about a softening and destruction of the connective tissue. In the outer walls of this cavity there was developed a very large number of capillary blood-vessels which later became intimately associated with the yolk sac placenta. 4. At the point of rupture the epithelium bordering the opening became slightly everted and this opening did not close up as in the guinea pig nor did it become filled with a fibrin clot as in man, but it remained open and the epithelium cells were practically unchanged until later in the development when they became destroyed by the trophoblastic tissue of the fœtal placenta. 5 The trophoblast became adherent to the everted epithelial margin of opening in a zone somewhat external to the germinal area. This occurred at the time of the escape of the blastocyst from the uterine lumen. 6 There was the so-called inversion of layers. The germinal area sank into, and invaginated, the entodermal vesicle or yolk-sac, this cup-like structure being suspended by the adhering trophoblastic zone noted above. The cavity of the uterus was for the time being continuous with the inner portion of this cup. 7. The amnion was formed by a folding over of the outer margin of the germinal ectoderm, the adjacent trophoblast forming the serosa or false amnion which now separated the uterine cavity from the extra embryonic body cavity. 8 The trophoblastic layer constituting the false amnion now underwent a folding over similar to the formation of the true amnion. The edges of the folds united to form a two-layered rather rounded plate of trophoblast which now constituted the fœtal placenta. 9. This placental plate where it came in contact with the uterine

urea, he said, might appear low by iodide of potassium excretion as calculated by colorimetric tests. In the future the administration of the drug might prove of value as a guide of the renal competency.

Professor F. B. TURCK (Chicago) described with diagrams his experiments on

The Pathogenesis and Pathology of Ulcers of the Stomach.

Duodenal and gastric ulcer could be produced by feeding dogs with the bacillus coli communis for variable periods. This observation for the first time afforded a basis for the real etiology of peptic ulcer. Agglutination could be obtained in the blood to bacillus coli communis of the dogs which had thus been fed.

The Forms of Arterio-sclerosis.

A joint meeting with the Section of Medicine was then held, at which a discussion on this subject was opened by Professor W. H. WELCH (Johns Hopkins University). The various types of the disease were fully described as met with in Professor Welch's experience and the address was received with applause.

Dr. KLOTZ (McGill University, Montreal) described his experimental work with adrenalin in conjunction with vasodilator drugs on the arteries. The experimental arterial lesions produced in animals were of two kinds, either a degenerative one, affecting mainly the media, or a regenerative one, in which the intima proliferated, while little or no degenerative change was seen. It was found, too, that the substances which were used to produce the former belonged to the class of high-pressure drugs, but at the same time it was likely that the high pressure did not itself lead to the medial lesions noted; there was a distinct degenerative action of the drug on the muscle fibres of the media. Elastic fibres became affected later. The latter once giving way led to aneurysmal dilatation. The degeneration was of a fatty nature. The intimal regeneration was consequent to bacterial toxins, the proliferation being confined to the endothelial and subendothelial cells. When only intimal lesions were present aneurysms were not formed. In man lesions of a degenerative nature were met with in the Moenckeberg type of peripheral arterio-sclerosis and with the form of this disease as it was found in the aorta, both of which processes were confined to the media. The experimental bacterial lesions of vessels simulated the endarteritis chronica deformans which developed pearly intimal plaques. Adrenalin was a selective drug on the muscle of the circular coat and produced calcification and aneurysms in from two to three weeks. In the bacterial lesions cultures of a low virulence were used.

The PRESIDENT showed most interesting lantern slides illustrating his work on arterial lesions. One section showed distinctly *bone* metaplasia in an artery in which marrow cells were present. He considered that the degree of damage to the media determined the degree of reaction in the intima, repeating Sunikaya's experiments on the aorta. If the damage was too severe there was no reaction. Damage to elastic lamina followed severe damage of muscle fibres and necrosis.

Professor L. ASCHOFF (Marburg), who spoke in German, was warmly greeted. He gave his findings as to the distinctions of arteries according to their functions, whether peripheral or central.

Dr. PEARCE (Albany) continued the discussion. He said that experimental lesions were of great value in explaining degenerative and regenerative changes in vessels. The physiological study of the action of adrenalin was of great value in explaining the problem of cardio-vascular pathology. He believed that a temporary ischæmia in capillary areas produced lesions in the heart and blood-vessels.

Professor T. CLIFFORD ALLBUTT (Cambridge) said that he came to the discussion as a learner and spoke only from the clinical aspect. Arterio-sclerosis was a purely pathological term and Professor Welch in opening the discussion had shown how this term should be used. Adaptation of arteries might be regarded as the yield of the normal resources of the body to mechanical causes, such as pressure. Four or five years were taken for the cardio-vascular system to take on adaptation. Compensation was left behind.

Professor ADAMI regarded arterio-sclerosis as a reaction on the part of the vessel. The types of arterio-sclerosis were grades of this disease.

Professor WELCH, in reply, said that he was much interested to hear Professor Aschoff's views as to the distinctions of arteries according to their function, which agreed with his own observations. As to the propriety of the use of the word "adaptation," he agreed with Professor Clifford Allbutt.

Dr. ARMAND RUFFER (Cairo) contributed a valuable paper on

The Diagnosis of Cholera Asiatica.

His experiences in Egypt in connexion with the quarantine of pilgrims in that country was that cholera vibrios in the dejecta were not a danger, though bacteriologically they were cholera. The clinical side in diagnosis was of high importance.

Miss AMOS SHELDON (Alexandria) and Professor FLEXNER (New York) also spoke.

FRIDAY, AUGUST 24TH.

The meeting commenced by a demonstration by Professor F. G. NOVY and Professor R. E. KNAPP (Ann Arbor) of beautiful lantern slides illustrating

The Nature of Spirochætæ.

The organism was obtained from a case of relapsing fever which occurred in New York in 1905 and was described by Dr. Carlisle. It differed from that of the Bombay spirillum in being apposed end to end with a single terminal flagellum, whereas the latter did not give rise to a continuous spiral. The question of plurality of relapsing fevers was rendered all the more prominent by the demonstration that the spirillum of African tick fever differed from spirillum Obermeieri. Tick fever spirillum formed curves or figures of 8 and had numerous flagella. The spirochætæ probably did not belong to the protozoa (and more especially to the trypanosomes) but were bacteria. There was no definite nucleus, blepharoplast, undulating membrane, or flagellum, structures seen in the trypanosomes. There was evidence of transverse division into cells 8μ long and rapid multiplication ensued in the blood of rats. It could produce active immunity in animals, like the cholera spirillum, unlike protozoa which might exert a preventive but not a germicidal or curative effect. It was indifferent to the presence of air. Rats had been immunised by inoculation and the "recovered" blood possessed two immunity units per cubic centimetre. Blood could be hyper-immunised to contain 500 units or was 250 times more active than "recovered" blood. The infection could be prevented in mice and monkeys also. The immune blood possessed a marked germicidal and agglutinating action *in vitro* and *in vivo*.

In the discussion that ensued the PRESIDENT asked what evidence there was of cure in animals which had been inoculated and Professor NOVY replied that the spirilla disappeared from the blood.

Dr. F. W. MOTT (London) gave a lantern slide demonstration of

The Changes Produced in the Nervous System by Chronic Trypanosome Infections.

The material for examination used was (1) 30 cases of human sleeping sickness, including two Europeans; (2) several cases of trypanosoma Gambiense infection in which there was glandular infection, but in which the nervous system had not yet become involved; (3) tissues of ten monkeys which had been inoculated with trypanosoma Gambiense; (4) nervous tissues of oxen, inoculated with Jinga trypanosome, probably a form of nagana or the tsetse disease; and (5) animals experimentally infected with surra. In the lymph glands, acute, subacute and chronic, and chronic fibrotic changes were observed. In the acute stage there were endothelial cell proliferation of the vessels, lymphocyte proliferation, and nuclear mitosis of the branching retiform cells forming the sustentacular framework of the glands. Similar changes were observed in the perivascular and meningeal lymphatics of the central nervous system. There was chronic inflammatory interstitial change with neuroglia cell proliferation and overgrowth of the central nervous system produced either by the invasion of the cerebro-spinal fluid or by a toxin produced in the lymph glands. Degenerative changes in the leucocytes and plasma cell accumulations could be traced to final disintegration. The demonstration of trypanosomes in sections was extremely difficult. In several thousands of sections of tissues of sleeping sickness not more than half a dozen showed trypanosomes, probably because there was a terminal microbial infection, usually diplostreptococcal. Changes in the central nervous system in dourine or mal de coit were also described, the posterior spinal ganglia being profoundly affected. Orr and Rowes had shown experimentally that poisons were conveyed along the nerves to the posterior roots of the [illegible] cord and it was probable that in mal de coit the lymph glands affected produced toxins which were conveyed along the lymphatics of the pelvic plexus of nerves to the lumbo-sacral ganglia primarily and to all the spinal ganglia eventually.

Professor **WELCH** in discussing the paper said that streptococcic infection caused death in protozoon infections and also in small-pox.

Dr. J. M. **BEATTIE** (Edinburgh) asked whether the lymphocytes in the perivascular lymphocytosis were from the blood or proliferated around the vessels.

Professor **ADAMI** asked whether there were any other nerve diseases showing glia proliferation as in sleeping sickness.

Dr. **MOTT**, in reply, stated that there was a diplostreptococcal infection in 80 per cent. of cases of sleeping sickness bringing about a fatal end. Points of suppuration in the lymph glands were observed. Professor Rose Bradford had shown that the blood in a case of sleeping sickness in University College Hospital was sterile. Lymphocytes might be formed in the lymphatics of the nervous system and glia cell proliferation also occurred in general paralysis, when it was a substitution process.

Professor M. **NICOLLE** and Professor F. **MESNIL** communicated a paper on

The Treatment of Trypanosomiasis by the "Colours of Benzidine."

The therapeutic action of symmetrical diazo compounds was discussed. The benzenic and naphtholenic chains gave rise to inactive derivatives The derivatives which were active *in vivo* against nagana were solutions having a blue, violet, rose or red colour, and were inactive *in vitro*. Asymmetrical diazo compounds offered no advantages over the symmetrical, but rather the reverse, and triazo and polyazo compounds never displayed any curative power even when they contained good lateral chains. The treatment of (experimental) mal de caderas in mice and (experimental) surra in mice and human trypanosomiasis was discussed, and also the treatment of the experimental infection due to trypanosoma dimorphon (mice). The best lateral chain for the four preceeding trypanosomiases was ac. H.; for the first three diazo dichlorobenzidine, for the last paradiamino diphenylurea. For the infection of trypanosoma dimorphon they found the opposite condition. It was safe to hope that a means of distinguishing trypanosomes by the help of a chromo-therapeutic criterion would be arrived at.

Professor **ADAMI** said that the work on chemical constitution and therapeutic action, initiated by Ehrlich, on which Professor Nicolle's contribution was based, was of the highest value.

Professor R. T. **HEWLETT** (London) asked whether nephritis resulted from trypan red.

Professor **HEWLETT** gave an excellent lantern slide demonstration of

A Beri beri-like Disease of the Monkey,

with a description of the pathological histology of beri-beri. Tube casts had been repeatedly found by him at the London School of Tropical Medicine in numbers in the urine in beri-beri, while Dr. Daniels thought that a urinary channel of infection of beri beri was more likely than a fæcal one, though both hypotheses were unlikely.

Dr. **KINYOUN** had observed 20 cases of a beri-beri like disease in monkeys which occupied one cage.

Dr. **BEATTIE** gave a lantern slide demonstration of

A Sporozoon of the Nasal Mucous Membrane, the Rhinosporidium Kinealyi (Minchin).

The sections showed the presence in the mucous membrane of minute cysts with a chitinous envelope. The walls were of varying thickness. The cysts were 0·1 to 0·3 millimetre in diameter and filled with undifferentiated protoplasm; a nucleus and nucleolus could be made out. In others chromatin masses were seen corresponding with the trophozoite stage of the sporozoon. Cysts from six to eight millimetres in diameter were filled with spherical or ovoid bodies, the spore morulæ. Each spore morula had a cell wall. They discharged by rupture or through a pore into the surrounding tissues, forming an abscess, and they would probably be found in the discharges. Finally, granulation tissue invaded the cyst.

Dr. **HEWLETT** communicated a paper by Dr. **DE KORTÉ** on

The Virus of Small-pox and Vaccinia.

Hanging drop preparations of the lymph of the vesicle showed a large number of morphological elements like pus cells, containing highly refractile grains within the cell substance even after 12 months of storage. Large cells were seen with nucleus and karyosome, limited by an ectosarc, the encysted parasite. They were present in fresh active glycerinated calf-lymph; also when it was suspended in saline solution. Morula-like bodies were also present, in addition to spore, sporidium or amœba, encysted parasite, and morula. They were not leucocytes and not epithelial cells.

Dr. J. R. **BALLAH** (Montreal) described his

Experiments with Vaccine Lymph,

his method of obtaining typical vaccine lesions in the animals of the laboratory, the effects of dialysis of vaccine lymph, and the attempted culture of the vaccine organisms *in vitro* and *in vivo* in celloidin capsules. The dialysate was active after 18 hours. The bodies described by Dr. de Korté were to be regarded as albuminoid or lipoid and not even living. A sterile inactive calf serum was added to 2 per cent. broth (+ 1·5) and 20 per cent. hay infusion in equal volume and inoculated with sterile vaccine emulsion (Green's chloroform method), but no growth ensued. With an active vaccine emulsion containing a non-virulent streptococcus in some cases there was a creamy cloud at the top of the fluid which was noteworthy. This appeared to be associated with the production of alkali. It consisted of minute spherical highly refractile bodies varying in size, being just visible. They could not be fixed or stained and inoculation experiments had led to no indubitable results. Possibly they were invisible or ultravisible bacteria.

Dr. **KINYOUN** had seen a vaccine virus which had been stored in the "cold" for five years and which was very active.

Professor **ADAMI** regarded the large spherical bodies described as allied to the lipoid bodies in myelin and as of doubtful significance.

Dr. **BEATTIE** contributed a paper on

The Bacteriology of Rheumatic Fever.

He had examined culturally and by inoculation 12 strains of streptococci and compared them with the micrococcus rheumaticus isolated from three cases of definite acute rheumatism. This organism grew copiously on gelatin and formed much acid, and precipitated the bile salts in McConkey's bile salt lactose broth. The streptococci used as comparison gave no reaction in this medium. On inoculation with streptococcus there was purulent arthritis and once there resulted an endocarditis; pyæmic abscesses in the kidney and spine occurred also. With the micrococcus rheumaticus there was arthritis, non-purulent, in 60 per cent. of cases and in 33 per cent. endocarditis. Dr. Beattie failed to get cultures from blood but the organism could be grown from pieces of the synovial membrane removed from the knee-joint post mortem. The organism differed from streptococcus in the results of injection; it was not an attenuated streptococcus, and in uncomplicated cases of acute rheumatism the organism was not found usually in the blood or in the joint exudates.

Dr. G. A. **CHARLTON** (Regina) said that a series of experiments were undertaken in the pathological laboratory of the McGill University during 1902–03 which in general confirmed the results of Dr. Beattie's work. A micrococcus was isolated from three cases of acute rheumatism. It was similar to a streptococcus morphologically and culturally, but the micrococcus grew more readily. Inoculations resulted in the production of arthritis without pyæmia. Inoculations of strains of streptococcus gave arthritis with pyæmia in most cases. The experiment was not completed or as yet reported.

Professor R. **MUIR** (Glasgow) expressed appreciation of the value of Dr. Beattie's work and asked whether the organism occurred in subacute rheumatic conditions as in nodules. It was possible that the latter were not rheumatic.

LARYNGOLOGY AND OTOLOGY.

Almost the entire contingent of British laryngologists and otologists *en route* for Toronto met in Montreal on Saturday, August 18th. On the following morning they were conducted over the Victoria Hospital by Dr. H. S. Birkett, who has charge of the throat and ear department. The lavish equipment of the building and the facilities for teaching evoked general admiration. By the kindness of Dr. and Mrs. Birkett the members were entertained to luncheon in the Hunt Club and afterwards were shown places of interest in and around Montreal. In the evening a number of the Canadian laryngologists dined with their British *confrères* in the Windsor Hotel. The first opportunity in Toronto afforded to the members and guests of the section of renewing old friendships and making fresh ones was at the successful and largely attended At Home given by Dr. and and Mrs. Gibb Wishart on the Monday evening.

TUESDAY, AUGUST 21ST.

At the opening meeting of the section the PRESIDENT (Dr. J. DUNDAS GRANT, London) made a few introductory remarks, in the course of which he expressed regret that only a comparatively small proportion of the programme was devoted to otology proper. He trusted that the dazzling brilliancy of the results of modern surgical otology might not be allowed to divert their gaze from the minute details of intra-aural technique. The former were answerable for the saving of many lives from danger, but the latter enabled them often to prevent their patients from running into those dangers. Let them remember that the ear was primarily an organ of hearing and cultivate the accuracy and patience in examination and dexterity and delicacy of manipulation upon which their success in relieving their patients and in making their own reputation so much depended.

Discussion on Operations for the Correction of Deviations of the Nasal Septum.

The opening paper was read by Dr. STCLAIR THOMSON (London). The majority of septal deviations, he said, were compounded of deflections and outgrowths of both cartilage and bone. In many cases both nostrils were more or less obstructed. Until recently he knew of no method which could deal with such cases satisfactorily. To produce a large perforation in the septum always appeared to him both inartistic, unsurgical, and in many cases ineffectual, for the obstruction not infrequently ran so far back as to be beyond it. The President had expressed the opinion that it was most undesirable to produce a perforation. To shave off the crest of these deviations seldom left any tangible patency, while those rhinologists who talked of "simply pushing the weakened septum into the median line" could only be admired for their faith in the malleability of the septum, while they were to be congratulated on the tolerance of their patients who would bear the necessary renewal of packings or splints for three weeks afterwards. The rough, unsurgical, and ineffectual use of Adams's forceps and such-like barbarous contrivances, already belonged to the past history of rhinology. For his own part the deviations most requiring treatment had been formerly just those in regard to which he felt most powerless. In some cases he avoided operation on the septum by removing part of the turbinals but in many he felt compelled to advise the patient to tolerate the nasal stenosis as he knew of no satisfactory method of correcting it. A few years ago he would only operate on half a dozen septa in a session, when now he felt justified in operating on 40 or 50. This confidence was begotten of the adoption of the method of excising septal obstructions by the submucous method and he took it that the debate would be largely concerned in discussing the methods, difficulties, advantages, and objections of this operation, while considering simpler measures which might sometimes be used instead of it. His own technique had recently been described in detail in THE LANCET.[1] The first case of this operation shown at the Laryngological Society of London was presented by him on May 6th, 1904. The objections which might be raised would call for discussion. The chief were: (1) the difficulties of the technique; (2) the anæsthesia; (3) hæmorrhage; (4) stitches; (5) the possibility of collapse of the bridge of the nose; (6) danger from subsequent blows on the nose; and (7) unsuitability for children. The technical difficulties disappeared with practice and patience. Hæmorrhage had never given him trouble and he was surprised to read of surgeons who referred to it and the frequent mopping required during the operation. The method of anæsthesia described rendered the operation painless until they came to the removal of bone, which was disagreeable. He had tried and had abandoned the submucous injection of cocaine and adrenalin. His first cases were done under chloroform and he had recently reverted to it for nervous patients requiring an extensive operation. The stitches expedited healing. No collapse had occurred in any of his patients and Freer's experience showed that there was no added risk from subsequent blows on the nose. Under 16 to 18 years of age there was increased difficulty in operating in narrow noses and at an earlier age there was the possibility that it would hinder complete development and the risk of the deviation re-forming if not completely removed. But other surgeons would doubtless give them their experience on these points. The more actual objections which occurred to him were the following: (1) incompleteness of operation; (2) flapping septum; and (3) previous operations. It was the incomplete operation which caused the flapping condition of the septum in which during quick inspiration the fleshy septum was sucked against the outer wall of the narrower side, thus leaving the patient with only one free nostril. If the operation were carried out perfectly both sides would be equally free and the septum, though flaccid, would remain vertical. Previous treatment rendered the operation more difficult; the mucosa might be changed into scar tissue adhering closely to the septum or the two mucous membranes might be united together and the task of separating them became most difficult. The advantages of this operation might be summarised as follows: (1) no general anæsthetic was required; (2) there was no hæmorrhage; (3) the absence of pain and shock; (4) there was no reaction (the post-operative temperature seldom rose above 99° F.); (5) the absence of sepsis with its possible extension to the ear, the sinuses, or the cranial cavity; (6) no splints were required and no plugs after 48 hours; (7) rapid healing, without crust formation; (8) no risk of troublesome adhesions; (9) short after-treatment; (10) speedy establishment of nasal respiration; (11) suitability for all deformities of cartilage or bone in the septum which required treatment; (12) the space gained was not only that which resulted from a vertical septum but the extra room secured by the removal of the cartilage, which was sometimes one-eighth of an inch in thickness; (13) no ciliated epithelium was sacrificed; (14) accuracy of result could be depended on and the prognosis was therefore the more definite; and (15) the improved appearance of the nose externally. He did not wish to magnify their office but it was wrong both to their patients and themselves to minimise, by adopting a half-measure, an operation which with skill and patience could result in so much permanent benefit to those who required it.

Dr. JOHN O ROE (Rochester, New York) read a paper in the course of which he stated that the operations required for the correction of the nasal septum might be divided into those necessary for the putting in proper condition of the nasal passages and those for the straightening of the septum itself. Having taken into consideration the associated abnormalities in the nose it was also necessary to give attention to such conditions as had contributed to cause or were active in maintaining the deviation. It was also important to remove such conditions as would cause either nasal passage to be obstructed when the septum was placed in the middle line. On undertaking the main operation it was especially important carefully to select the operation best suited to the form and conditions of the deflection and the associated conditions of the nasal passages. If there were a marked thickening of the septum the submucous resection was especially called for. In other cases if the set or lower attachment of the septum was at one side of the median line and otherwise generally straight the Watson or Gleason operation was especially adapted. If the deflection were confined to the cartilaginous portion the Asch operation might in some cases be of special service, whereas if the osseous or the osseo-cartilaginous portion were deviated the Roe operation, by the use of fenestrated comminuting forceps, was the one to be selected. No one operation was adequate to all conditions in all cases but each was adapted to a certain variety, and therefore one operation was often a supplement to others. The one operation which would be found more often to meet the requirements of different cases, or to supplement other operations, was the Roe method of fracturing the septum by comminuting forceps. Deviations of the septum, as first and best classified by Jarvis, might be divided into osseous, osseo-cartilaginous, and cartilaginous. The most frequent form was the osseo-cartilaginous occurring in about 60 per cent., while deviations of the cartilaginous portion alone did not exceed 30 per cent. Therefore, other things being equal, the form of operation best adapted for the correction of deviations of the osseo-cartilaginous portion should be twice as often called for as those adapted for the correction of the cartilaginous portion alone. In nearly all instances the bend in the septum found in the osseo-cartilaginous cases took place at or just behind the osseo-cartilaginous junction or

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[1] THE LANCET, June 30th, 1906, p. 1810

the inferior turbinates would be drawn away from the septum and the latter pulled materially downwards.

Dr. J. A. STUCKY (Lexington, Kentucky) uttered a warning against too great enthusiasm for submucous resection. In the majority of cases of septal deviation the removal of the anterior third of the middle turbinate assisted ventilation and drainage of the upper parts of the nose. For anæsthesia and hæmostasis he recommended a solution containing sodium chloride, five grains; cocaine hydrochlorate, 20 grains; antipyrin, 20 grains; adrenalin solution, two drachms; and water to six ounces.

Dr. H. P. MOSHER (Boston) expected still to use the Gleason operation for hospital work owing to the time required for submucous resection; the latter, however, was the method of choice in private practice. Cargill membrane was better than rubber tissue for preventing adhesions.

Dr. WENDELL C. PHILLIPS (New York) maintained that the guide in deciding as to operation should be symptoms and not the mere presence of a deflection or spur.

Dr. C. G. COAKLEY (New York) had seen straightening of the deflected septum and increased patency of the nasal passages in children with high palates follow the widening of the arch by means of dental splints. The packing should keep the septum in the median plane; too much on one side resulted in a continued deviation, while too little was liable to be followed by the development of a hæmatoma between the layers.

Dr. W. E. CASSELBERRY (Chicago) gave Dr. Freer the credit of originating in America submucous resection of the nasal septum. This operation was, however, not to be preferred in all cases—e.g., in septal deflection with external lateral deformity fracturing operations were more successful, and in young children the Watson-Gleason method was adequate and rapid. To avoid the fragmental dissection of bone far back he sometimes separated the muco-perichondrium on the concave side and then sawed off the projecting bony convexity.

Dr. P. WATSON WILLIAMS (Bristol) had found it advantageous to make a small primary puncture on the concave side well forward in order to avoid perforating while cutting through the cartilage. Through this a long narrow mucoperiosteal elevator was introduced by means of which the cartilage was bared in the region where later it would be incised from the convex side.

The PRESIDENT considered that the discussion showed that there was room for judicious eclecticism in the choice of operation. He usually practised Killian's method but in cases of deflection with a sharp vertical ridge he preferred Freer's L incision. As a rule, he operated on the convex side but when the triangular cartilage was dislocated into one nostril he operated on this side; also, when there was extreme enlargement of the maxillary crest he sometimes selected this side and extended his incision across the floor of the nose so as to allow of the detachment of the mucoperiosteum from below upwards.

Dr. STCLAIR THOMSON and Dr. FREER replied.

Mr. HUGH E. JONES (Liverpool) and Mr. C. THURSTAN HOLLAND (Liverpool) gave a demonstration of

An Exostosis of the Frontal Sinus

and showed a skiagram of the same. The patient, a woman, aged 35 years, had consulted Mr. Jones because of severe pain, obstruction of the right nostril, and protrusion of the right eyeball. The radiogram which was taken with the woman lying face downwards and the plate beneath her face, gave valuable information as to the position and extent of the exostosis. The growth was removed; it measured two and a half by one and a quarter inches.

Dr. MOSHER gave a demonstration of

A Series of Sphenoidal Sinuses,

showing a partial partition on the outer wall. The spur might interfere with drainage and so become of clinical importance.

Dr. SMURTHWAITE read a paper on

Headache: Pathological Conditions of the Middle Turbinal a Causal Factor.

When the bony conformation of the middle turbinal caused it to be close to, or in contact with, the septum a slight degree of turgescence or hypertrophy of the mucous membrane of the opposing surfaces would give rise to pressure. This in some patients was accompanied by one or more of the following symptoms: tightness across the bridge of the nose, a feeling of pressure above the eyes, and pain radiating from the inner canthus and side of the nose towards the intra-orbital or supra-orbital canal, round the eye causing lacrymation or passing up over the forehead and scalp to the occiput. If the nervous supply of the nose were considered it was evident that pressure on the middle turbinal or septum might by transference give rise to pain in other regions supplied by the first and second divisions of the fifth nerve. Several cases were referred to in which relief from symptoms such as those mentioned was obtained by removal of the anterior end of the middle turbinate. It was to this particular region of the nose that Dr. Smurthwaite desired to direct attention as the seat of origin of nasal headaches.

A paper was read by Dr. PERRY G. GOLDSMITH (Belleville, Ontario) on

Some Unusual Cases of Frontal Sinus Suppuration.

The following were the cases detailed. Case 1.—A patient, aged 21 years, complained of post-nasal discharge. Catarrh settled in and about the eye and was accompanied by marked frontal pain. There was enlargement of the anterior end of the middle turbinate and a few polypi bathed in pus were present in the middle meatus. The anterior end of the middle turbinal was removed as a preliminary operation. A few days later the patient informed Dr. Goldsmith that her complaint had been entirely cured but that there was now a disgusting discharge from the nose which she had never had before the operation. The antrum and frontal sinus were both irrigated from the nose for several weeks, when the discharge ceased. Case 2.—A patient, aged 33 years, complained of supra-orbital neuralgia and nasal discharge. Morphine had been given in large doses but without relief. The floor of the left frontal sinus was exceedingly tender but not bulging. This cavity and the left antrum were operated upon and the patient was much better for the next two days. On the third day the temperature rose to 104° F. and was accompanied by marked distress in the head. The packing was removed, which allowed of a free flow of pus and gave immediate ease. Pus was now found to come through a very small opening which led towards the junction of the front part of the forehead and the scalp. Subsequently a large cavity was laid open in this situation. Healing had almost taken place when reinfection occurred due to an acute exacerbation of the disease in the other sinus, a small perforation being present in the septum. The other sinus was then operated upon and both healed promptly. To correct the disfigurement over the sinus first opened a large flap consisting of the entire scar and tissues over the bone was dissected up, the depression was plastered with solid paraffin, and the flap was sutured in place. The cosmetic result was excellent. Case 3.—A patient, aged 64 years, had undergone radical operation on all the sinuses. Twelve hours after the operation on the frontal sinus a severe attack of facial erysipelas set in which infected the antrum, the pharynx, and the larynx, but not the unpacked frontal sinus. Ultimately the patient did fairly well. Case 4.—The patient had frontal sinusitis, orbital phlegmon, and displacement of the eyeball downwards and outwards due to a primary sarcoma in the right nasal fossa. The only complaint was diplopia. The pus in the orbit was evacuated and a large mass of sarcomatous material was removed. The patient was quite comfortable afterwards but died within a year from secondary involvement of the liver. Case 5.—A man, aged 41 years, complained of having caught a very severe cold in the head which caused distress in one of his eyes. Apparently he was suffering from a severe attack of conjunctivitis with iritis. The nasal septum was found to be deflected and on pushing it aside an enlarged middle turbinal was seen to press against the septum. On probing the fronto-nasal duct a small stream of muco-pus escaped. The patient obtained immediate relief and by using menthol inhalations was rapidly well. The ocular condition subsided without further treatment. Concluding, Dr. Goldsmith said that felt burrs of various sizes attached to a dental engine had facilitated greatly the clearing of cavities of their diseased membranes and had assisted in checking hæmorrhage.

Dr. HERBERT TILLEY read a paper on

Some Considerations upon Certain Factors in the Diagnosis and Treatment of Suppurative Lesions in the Nasal Cavities.

With regard to the etiology of suppuration in the maxillary antrum suppuration in that cavity was, he said, due to intranasal or dental infection. It was important to determine which was to blame, for the prognosis and treatment in cases of dental origin were much more favourable. Points of distinction between these two classes of cases were the more frequent presence of hypertrophy of the uncinate process and of polypi in cases in which the sinus had been infected from the nose; when a diseased tooth was the cause of trouble aching in it would often be produced by syringing the antrum. In the matter of diagnosis puncture was most trustworthy but on three occasions there was no return of the injected fluid owing to the valve-like actions of intra-polypi. Pus from the antrum might be situated high anteriorly in the middle meatus owing to a deviation of the septum pressing against the posterior half of the middle turbinate or the presence of a large polypus in the posterior part of the meatus? Alveolar drainage was more likely to be effectual in cases of dental origin when of short duration. Some form of radical operation would be required for the majority of chronic cases of whatever origin and was practically always called for if polypi were present in the middle meatus. He (Dr. Tilley) practised the Caldwell-Luc operation with the following modifications: (1) removal of the whole inner wall and curetting of the lower anterior ethmoidal cells; (2) removal of only as much of the mucous membrane as was diseased; (3) closure of the bucco-antral wound; (4) no packing; and (5) syringing the nasal cavities. The ethmoidal cells were rarely the seat of suppuration except in association with a similar condition in the neighbouring sinuses. When the symptoms pointed to suppuration of 'the frontal sinus the presence or absence of pus could generally be determined by reclusion. In acute suppuration irrigation would hasten cure. In chronic cases it might also be successful if the contour of the sinus were fairly regular and the opening into the nose unobstructed. Pain over the sinus was no proof that disease was located there. The best results in Dr. Tilley's hands had been secured by a simplification of Killian's operation. The details were the same as his with the exception that the floor of the sinus was not removed. The diseased ethmoidal cells were thoroughly curetted through the opening below the bridge of bone and the wound was sutured at the close of the operation. The after-treatment consisted in daily irrigation of the sinus through the nose by way of the large communication made at the time of operation. Osteomyelitis of the frontal bone had been due, in Dr. Tilley's opinion, to the neglect to remove the fronto-ethmoidal and ethmoidal cells at the time of operation, so that the higher sinus had been re-infected and the pus thus retained under tension had invaded the diploë of the frontal bone. Since giving special care to the removal of the ethmoidal cells he had had no cause to fear osteomyelitis. As regarded the sphenoidal sinus in three cases deep-seated pain in an ear which was otherwise normal had been a very definite symptom. Irrigation of the sinus or instillation of a few drops of peroxide of hydrogen would sometimes induce the same symptom. The pulsation of pus in the neighbourhood of the ostium sphenoidale was pathognomonic of suppuration in the sinus. In operating, always more of the wall than seemed necessary at the time of operation should be removed, because of the tendency of the opening to contract. Free drainage was the desideratum. Curetting the interior was not necessary and might be dangerous.

Dr. Freer spoke in defence of the intranasal operation of removal of a large portion of the inner wall of the antrum of Highmore for relief of its chronic suppuration. He had had six consecutive cases of chronic empyema of the antrum with complete recovery in from three to four weeks simply as a result of the free drainage and ventilation of the cavity thus obtained.

Dr. Coakley said that pain in the teeth was almost always complained of while irrigating an acutely inflamed antrum independently of the state of the teeth. He had not removed the floor of the frontal sinus in his latest operations and thereby had saved time during the operation and had not delayed healing. Pain referred to the ear had been common in his cases of acute sphenoiditis.

Dr. F. Fletcher Ingals (Chicago) thought that the frontal sinus could be explored by the probe in 90 per cent. of all cases. When this was possible a free drainage canal could be safely established by the pilot burr which he had recommended. He believed that this operation was as safe as any other on the frontal sinus.

Dr. Mosher had obtained most satisfactory results from Killian's operation in frontal sinus disease. The chief objection to it was the possible deformity. To avoid this they should leave as broad a strip of bone as possible above the rim of the orbit, and the long axis of the opening that was made in the anterior wall should be horizontal and parallel to the orbital margin, not vertical or obliquely vertical.

Dr. Watson Williams emphasised the undesirability of removing normal structures in order to investigate the condition of the sphenoidal sinus. If its ostium could not be inspected he punctured the lower part of the anterior wall with his sphenoidal sinus-cutting forceps. This procedure was free from risk. In antral suppuration the disease was nearly always limited to the inner wall so that removal of this was often sufficient to effect a cure.

Dr. StClair Thomson found last year in Paris that the Caldwell-Luc operation was in many cases giving place to puncture and repeated irrigation. He had no hesitation in doing a submucous resection in the presence of acute or chronic sinusitis. In reference to earache he would shortly publish a paper showing how misleading this symptom was in sphenoidal disease.

Dr. A. Logan Turner (Edinburgh) endorsed the view that when performing a radical operation upon the maxillary sinus the cavity should be opened through the canine fossa, for it was only thus that thorough visual exploration was possible.

Dr. George L. Richards (Fall River, Massachusetts) was of opinion that the large majority of cases of antral suppuration could be treated by puncture through the naso-antral wall. If a large enough opening were made the drainage would be good and many patients could be taught to wash out the sinus through a curved cannula. The question of cure by the intranasal route depended not so much on the duration of the purulent process as on the character of the antral mucosa.

The President was in favour of the treatment of rhinological conditions by rhinological methods but the principle should not be pushed too far. More than once he had wished that he had operated more radically but he was sure that he had in many instances been able by intranasal methods to obviate the necessity for external operations. He exhibited curved bougies for the dilatation of the infundibulum which, combined with the use of Sondermann's suction apparatus, had proved of value in the treatment of frontal sinusitis.

Dr. Goldsmith, in reply, said that the method of exclusion referred to by Dr. Tilley might fail in those cases in which the frontal sinus had emptied itself shortly before examination. They should be sure that sinus disease did not demand attention before they did any major operation on the septum.

Dr. Hanau W. Loeb (St. Louis) read a paper on

A Study of the Anatomy of the Accessory Sinuses of the Nose, based upon Reconstructions of Two Heads.

Reference was made to the method of reconstruction as outlined in a paper read by Dr. Loeb before the American Laryngological, Rhinological, and Otological Society at one of its meetings in June, 1906, by means of which it was possible to reproduce the sinuses in their proper relations, giving an anterior, lateral, and superior view. This made it possible to compare the various sinuses with each other and with those of other heads. The two heads studied were those of two men, one white and the other black, of about the same height, age, and weight. The very great differences which existed between the sinuses themselves and the corresponding ones of the two heads were clearly shown in the reconstructions. In this way only could exact measurements of individual sinuses be ascertained. While no definite conclusion could be drawn from a study of only two heads it was clear that the method furnished the means of more closely studying the sinuses and suggested the likelihood of greater understanding of the varieties, relations, and functions of the sinuses and the causes which led to their irregular distribution. Serial sections of each head were exhibited with drawings from the sections and reconstructions in various planes, showing relations and comparisons of the sinuses.

Dr. Coakley, in a paper on

Skiagraphy as an Aid in the Diagnosis and Treatment of Diseases of the Accessory Sinuses of the Nose,

said that at his request Dr. E. W. Caldwell had skiagraphed about 200 patients suffering from sinus disease. In 46 of these the frontal sinuses were operated upon so that the size and shape of the sinuses could be compared with those conditions as shown in the skiagraphs. It was not very difficult to obtain a plate that would show the presence or absence of the frontal sinuses, their size, and the subsidiary septa. Such plates might suffice to determine beforehand the type of operation best suited for the patient. Dr. Coakley was convinced that an excellent skiagraph could be depended upon to demonstrate even the presence or absence of disease. In a good skiagraph a dark, slightly curved area, almost parallel with the upper border of the orbital arch, had been found to correspond to a recess extending backwards over the roof of the orbit. When a frontal sinus was diseased there were invariably a cloudiness over its site and an indistinctness of its outlines as compared with the healthy sinus. The width of the ethmoidal cell area was easily demonstrated. A side view of the sphenoidal sinus often gave information as to whether the cavity was large or small.

Dr. J. Price-Brown showed a case of Nasal Sarcoma with pathological specimens removed three years ago.

DERMATOLOGY.

Wednesday, August 22nd.

The President (Dr Norman Walker, Edinburgh), in his opening remarks, after thanking the profession in Canada for the honour of being asked to preside and welcoming the visitors, took for his subject

The Place and Position of Dermatology in the Medical Curriculum.

He spoke of certain advantages which the student of the old times had when there was no separation of skin diseases into a department and he was constantly coming across cases all through his course. Now with the modern system of organisation the subject was perhaps better taught though compressed into too short a space. Whilst thinking that systematic lectures had been in the past, and in some subjects still were, overdone, nevertheless he considered that they had their advantages. In the necessary bustle of an out-patients clinique a large number of useful scraps of information might be gleaned but 10 or 12 systematic lectures would enable the student to profit much more from clinical instruction afterwards. As to the period in the curriculum in which a student should be taught dermatology he believed that in the five years' course the fifth summer was the best time. The subject should so occupy a regular place in the curriculum but as to whether it should form part of the degree examination he thought that the Edinburgh system of certificates would suffice. On the question as to what the student should be taught, he was of opinion that the commoner diseases should have prominence, whilst the rarer cases might be dealt with as they turned up. In addition to lectures the "quiz" classes of the Americans were very profitable to the student.

Dr. J. C. Johnston (New York) said that he would have liked more information as to the subjects to be taught and the time to be allotted to dermatology. His opinion was that what the student remembered was what he had learnt face to face with his instructor and that he should be thoroughly "quizzed."

Dr. Gilchrist (Baltimore) insisted on training the student to use his own reasoning powers in the diagnosis of skin conditions. The exercise of common-sense on his part should be encouraged.

Dr. G. H. Fox (New York) mentioned the advisability of teaching clinical diagnosis and leaving dermatological therapeutics to be acquired by the student at a later period. He laid stress upon the cultivation of the student's power of observation and claimed that only by the active use of his eyes in noting clinical peculiarities of common skin diseases, in place of listening passively to what his instructor had to say, could the student become expert in diagnosis.

Professor James Niven Hyde (Chicago) read a paper on

The Influence of Light-Hunger in the Production of Psoriasis.

After speaking of the accumulation of facts, he referred to the statistical frequency as shown in the reports of the American Dermatological Association from the year 1878, when the first return was made, to the year 1903. These reports showed 465,063 cases of diseases of the skin, among which were tabulated 13,979 cases of psoriasis, showing a proportion of about 3 per cent. The percentage of the last seven years ranged pretty regularly from 2·480 to 3·135, showing that the number of persons suffering from psoriasis was on an average nearly the same from year to year. The cities represented in these returns were Boston, Chicago, Montreal, Cleveland, Buffalo, and Detroit among the cities of the north, and New York, Brooklyn, Philadelphia, Baltimore, Washington, St. Louis, Atlanta, Cincinnati, and New Orleans in the nearer south. Of course, these figures did not represent the exact number of persons suffering from psoriasis in the towns named, but only cases falling under the care of experts, where diagnosis was assured and the record trustworthy. After referring to the situation of the lesions and age of incidence, he spoke of the etiology and put down five propositions for discussion.

1. Psoriasis is a disease that never affects the lower animals, whether these be feral or in a state of domestication, for the reason that the integument of such animals is very rarely screened from the light by artificial covering. 2. If psoriasis in man be an expression of resentment on the part of the skin against the partial or total exclusion of light from its artificially covered surfaces, it is clear that the number of persons whose skin is thus abnormally sensitive is relatively small. 3. If psoriasis be a resultant of light-hunger in the skin of certain abnormally sensitive subjects, because of the greater or less degree of exclusion of light resulting from artificial covering of the body, the disorder should be most prevalent and most severe at those seasons of the year and in those countries in which sunlight is least abundant. 4. If psoriasis be a resultant of light-hunger in the skin of certain abnormally sensitive subjects, because of the total or partial exclusion of light from the protected portions of the body, the localisation of the disease in the integument should be largely determined in the regions of such exclusion. 5 If psoriasis be a resultant of light-hunger on the part of the skin of certain individuals, because of the greater or less degree of exclusion of light from the covered portions of the body, the effective treatment of the disease should be by illumination of the regions chiefly involved.

Dr. Duhring did not agree with Professor Hyde as to the cause. He spoke of the importance of internal treatment and discouraged the use of the x rays. In opposing a local cause he said that if there was one disease that was not parasitic it was psoriasis.

Dr. L. D. Bulkley (New York) thought that the eruption was due to metabolic causes; the skin parasites might play a part if the soil was suitable. He believed in prolonged internal treatment as in the case of syphilis. He had seen the lesions disappear under the internal use of large doses of nitric acid. He did not agree as to light-hunger being a cause.

Dr. Ross (Halifax) had had seven cases in hospital at the same time of psoriasis in coal miners; they had not had the condition before taking up that work.

Dr. Fox called attention to the freedom of the negro. He had photographed very many dermatoses but never yet had he obtained a photograph of a marked psoriasis in the negro.

Dr. Corlett (Cleveland) had never seen a case of psoriasis in the negro as an exciting, as distinguished from a predisposing, cause. He believed that light-hunger and local irritation took part, and thought that sunlight caused the eruption to disappear. He had not had marked effects from internal treatment.

Dr. A. R. Robinson (New York) thought that any external agent, toxic or traumatic, might cause psoriasis in a predisposed person.

Dr. Gilchrist believed that the parasitic theory had not been disposed of. The newer discoveries of the spirochætæ and the ultra-microscopic organisms opened up new fields for research.

The President having remarked on the diversity of opinion on the subject,

Professor Hyde, in reply, said that he would have been very much surprised if his paper had not brought out marked differences in the views held by dermatologists on the subject.

Dr. Johnston read a paper on

The Evidence in Favour of an Autotoxic Factor in the Production of Bullous Eruptions.

He mentioned that the basis of all these cases was practically the same and that borderland cases were frequently met with. He did not believe in a tropho-neurotic origin but thought that the symptoms, first general toxic followed later by a secondary anæmia, bespoke an autotoxic origin. A careful investigation into the relative nitrogenous products of the urine was unproductive of result, as they remained fairly constant till suppression began. However, indican was invariably present in bullous eruptions and always indicated autotoxic disturbances. The associated eosinophilia also spoke for such a cause. The effects of treatment also indicated that toxins were concerned. It consisted in saline cathartics, water in large quantities, open-air exercise, the hot-air cabinet with the douche bath, pilocarpine (especially for pruriginous cases when tar also did good), and the limitation of the proteid intake. His conclusions were that these conditions were autotoxic, they originated from proteid metabolism and they exercised a specific action on the vessel walls.

Dr. Bulkley agreed with Dr. Johnston entirely on the question and mentioned that in years past he had seen numerous cases of erythema multiforme, often presenting many bullæ, amongst the immigrants. So frequent were they that they were often alluded to as morbus immigrantium. In them there had been disturbances due to ocean travel—constipation often for a week. In them the disturbance yielded at once to treatment directed to the liver and intestinal relief.

Dr. Gilchrist thought that the question was one of deficient elimination.

Dr. Duhring said that local treatment was only of use for the immediate relief of symptoms. He had seen good results from general treatment somewhat on the lines which Dr. Johnston had laid down. He mentioned the importance of the nervous system in these cases and the difficulty of investigating the rôle played by it.

Professor Hyde spoke of shock as a cause of dermatosis of this kind.

The President having spoken, Dr. Johnston replied.

Professor J. A. Fordyce (New York) gave a lantern demonstration of many interesting cases of skin diseases. The microphotographs were very fine.

Thursday, August 23rd.

A clinical demonstration was given by Dr. Graham Chambers of cases of Ringworm where epilation had been produced by the x rays. He gave two or three exposures of from 15 to 20 minutes. He had not as yet used Sabouraud's pastilles. The cases showed alopecia without any erythema. Cases of pityriasis rubra, molluscum fibrosum, &c., were also shown.—Some excellent photographs were shown by Professor Hyde, including some cases of Blastomycosis.—Dr. Corlett's photographs were also very much praised.

Dr. Robinson read a paper on

Some Errors in the Treatment of Cutaneous Cancer.

The treatment, in his opinion, should be different according to the size, situation, and variety of the lesions. Very small lesions ought to be excised. When situated near the eye or on the nose, where excision if it had to be wide of the mark left bad deformity, the x rays and caustics were to be employed. He advocated scraping in suitable cases and went into details on the treatment suitable to such cases. He pointed out that caustic potash was of diagnostic value in picking out malignant nodules and mentioned beneficial effects from thyroid extract.

In opening the discussion on Dr. Robinson's paper the President spoke of the poor results frequently associated with excision, saying that probably the surgeon was anxious to leave as much of the face as possible. He recommended chromic acid as a useful caustic and one not so painful as some of the other agents mentioned.

Dr. Sherwell recommended the use of arsenic after operation, believing that it had an inhibitory effect on the cancerous diathesis.

Dr. Fox thought that the curette, or even better the dental burr, was of the greatest value preparatory to caustic or the x ray treatment.

Professor Hyde agreed in general with Dr. Robinson's methods. He had not seen any benefit from internal treatment.

Dr. Bulkley stated that alcohol in any form was injurious in epithelioma. Diet should be absolutely vegetarian. Silver nitrate he believed to be harmful in its inefficiency.

Dr. Corlett would like to add electrolysis as a method of dealing with these cases.

Dr. Breakey mentioned pyrogallic acid.

Dr. Gilchrist thought that the x rays were of undoubted value.

Dr. Robinson replied.

Dr. R. W. Taylor (New York) read a paper on

The Evolution of Intraprimary Prodromal Syphilides.

He alluded to the general conception of latency in the evolution of syphilis. He mentioned cases of successive chancres and gave the history of several cases showing a slight traumatism became infected, causing prodromal lesions. He concluded that the whole organism was infected from the beginning and that the process was a rapid one diffused by the blood.

Professor Hyde, Dr. Sherwell, and Dr. Bulkley spoke.

Dr. Gilchrist read clinical notes on a case of

Pityriasis Rubra

proceeding to gangrene of the extremities, a finger of the right hand and the whole of the left foot. The patient unfortunately left the hospital in the same chronic condition. She had been in hospital for some time and was in the same state when last seen. Examinations of the blood, urine, &c., all gave negative results as to any indication of the cause of the disease.

Professor Hyde spoke of weak solutions of carbolic acid leading to gangrene.

Dr. Corlett read a paper on

Dermatitis Vegetans

and showed photographs illustrating a case. He discussed the nature and etiology of the affection.

Dr. Wende (Buffalo) said that he had had several cases of this disease.

Friday, August 24th.

The proceedings were opened by a demonstration of cases, one of which was a case of pemphigus foliaceus of four years' duration. Another interesting case in a man, aged 49 years, was shown. The opinion generally held was that it was an example of pemphigus vegetans.

Dr. Bulkley read a paper on

The Wrong and Right Use of Milk in the Treatment of Skin Diseases.

Milk he considered to be a natural food and should be suitable to all. Laboratory theories on the subject would probably require modification. He believed that milk was capable of absorption without preliminary caseation and digestion. Administration should be at the time of alkaline digestion and away from any time of other food ingestion. If given so it was beneficial in acne when otherwise it would not be well borne. Cases of eczema and urticaria were also improved by this diet.

Dr. Duhring also spoke.

Dr. Graham Chambers introduced a discussion on

The Etiology of Eczema.

He reviewed the diversity of opinion on the subject and commented on its frequent association with asthma. He discussed the views of Dr. I. Walker Hall of Manchester on infantile eczema. Dr. Chambers considered it to be a disorder due to malnutrition.

The President laid stress upon the importance of external irritation as a cause, mentioning the dermatitis which some suffered from when exposed to primula obconica and other plants.

Dr. Bulkley supported Dr. Chambers's view as to an internal cause.

Dr. Duhring considered that the term "eczema" was used much too widely. He would distinguish eczema from dermatitis.

Dr. Sherwell believed in the constitutional nature of the disorder.

Dr. Guthrie Rankin (London) read a paper on

Blood Examinations as an Indication for Treatment in Certain Skin Affections.

He had used Wright's methods and considered that they gave clear and definite information as to the causes and treatment.

The President, Dr. Gilchrist, and Dr. Duhring having spoken on the subject, the proceedings of the Section terminated.

PEDIATRICS.

Tuesday, August 21st.

After some introductory remarks by the President, Dr. George Alexander Sutherland (London),

Dr. Robert W. Lovett (Boston) read a paper on

Osteogenesis Imperfecta,

an essentially congenital condition characterised by the occurrence of multiple fractures during intra-uterine life or in infancy. The long bones were chiefly affected and as many as 113 fractures had been recorded in a newly born child in one case. When the first fracture appeared after the age of three or four years the total number of fractures experienced was not so great as when they commenced at an earlier age. The history of a case attended by Dr. Lovett was given in which ten partial or complete fractures occurred up to the age of five months. The child died at the age of ten months from a general affection. Pathological examination showed very marked changes in the bones, the process of bone formation everywhere being checked and of an abnormal kind. The fibrous layer of periosteum was thicker than usual and instead of a continuous layer of normal bone the periosteum formed separate plates of non-laminated or imperfectly laminated dense bone in which were oval instead of stellate bone cells and large marrow spaces instead of Haversian canals. An interesting series of micro-photographs illustrating the pathological changes was exhibited.

Dr. HENRY ASHBY (Manchester) considered that Dr. Lovett's case was a noteworthy contribution to the subject of this disease. He did not think that this class of case was always fatal but that there was a class of apparently healthy infants whose bones fractured with very slight violence; the bones united readily and finally complete recovery occurred.

Dr. W. EWART (London) read a paper on

Abdominal Atony in Rickets.

As the medicinal treatment for this affection he recommended small doses of castor oil, to be given daily, and considerable doses of hypophosphites. He particularly advised the external application of massage, friction, and electricity and exhibited two elastic abdominal belts which he had devised and found most useful in treatment as they acted as a stimulus to respiration, supplied a hypogastric support, and tended to prevent gastric dilatation. The essential points of these belts were that the fabric was india-rubber and the usual elastic webbing was replaced by india-rubber cords.

The PRESIDENT said that he considered the abdominal atony to be secondary to gastric dilatation. He approved of the belt treatment as a respiratory stimulant and also agreed as to giving castor oil but did not approve of giving such large doses of hypophosphites.

Dr. EDMUND CAUTLEY (London) considered that the use of an abdominal belt would only aggravate the condition by lessening the activity of the abdominal muscles.

Dr. C. J. KAUFFMANN (Birmingham) recommended urotropin as an intestinal antiseptic in these cases.

Dr. EWART, in reply, protested against the tendency to condemn remedies *a priori* without trying them and once more urged a trial of elastic pressure by the abdominal belt.

Dr. ASHBY read a paper on

The Medical Aspect of Pneumococcal Infection.

He emphasised the importance of a suitable condition of soil for the implantation of the pneumococcus and considered that if the discovery of this organism had not yet led to any very practical results as regards serum treatment it had taught them the great value to individual patients of fresh air. This had been well exemplified by the success attending the treatment of measles and whooping-cough complicated by pneumonia in open-air shelters. He pointed out that the pneumococcus frequently gave rise to meningitis and described some typical cases of pneumococcal meningitis. He considered that a greater care of infant life, better nutrition, pure air, a levelling down of the slums, and a levelling up of the slum-mother would do more than aught else to lower the mortality from pneumococcal infection.

Dr. STUART MCDONALD (Edinburgh) spoke about the pathological aspect of pneumococcal infection and pointed out that the pneumococcus was the most potent disease-producing germ in children next to the tubercle bacillus. There was a greater tendency to general septicæmia from pneumococcal infection in children than in adults. Any important advance in treatment was likely to be found in the production of a vaccine and not of a curative serum.

Remarks were made by the PRESIDENT, Dr. JACOBI (New York), Dr. MACHELL (Toronto), Dr. BIER, and Dr. CAUTLEY. All deprecated excessive treatment in pneumonia and Dr. Jacobi pointed out that in his experience the prognosis of pneumococcal meningitis was not so severe as had been stated by some authorities.

WEDNESDAY, AUGUST 22ND.

Dr. C. L. STARR (Toronto) read a paper on

The Treatment of Tuberculous Abscess.

He reviewed the various methods of treatment of this affection: 1. The expectant method, the patient being put in the recumbent position and the affected limb firmly fixed. In favourable cases absorption might occur. 2. Aspiratio which he considered had the advantage of easy applicabil but did not remove the focus of disease in the abscess wa 3. Injection of germicidal agents which he mentioned or to condemn. 4. Excision of the entire sac as advocated Watson Cheyne. This he considered an ideal method treatment in the limited number of cases to which it w applicable. 5. Incision and drainage. He entered a hear protest against this common method of treatment of th affection which was advocated in most text-books and ev in recent works on orthopædic surgery and diseases of bon and joints. He considered that this treatment invariab resulted in sepsis and frequently endangered the life of t patient. 6. The method he adopted and recommended w that of incision, evacuation of the contents, curetting of th wall, and closure of the wound. He had presented a repo of 25 cases treated by this method at the Americ Orthopædic Association in 1901, but it received a go deal of unfavourable criticism. He now reported 30 add tional cases treated by this method which he consider gave better results than any other form of treatment. Th abscess should be incised freely, the contents evacuated, th wall wiped with 10 per cent. iodoform gauze aided by th curette, the cavity cleaned as perfectly as possible, th wound closed with deep sutures, and firm pressure by ant septic dressings applied. Swabbing the abscess cavity wit pure carbolic acid and filling it with iodoform emulsion, a at first recommended, had now been discontinued.

Remarks were made by Dr. RIDDELL and Dr. RALP VINCENT (London), the latter of whom thoroughly agree in Dr. Starr's condemnation of the method of treating thes abscesses by incision and drainage.

Dr. BLACKADER (Montreal) read a paper on

Rheumatism in Children.

He emphasised the fact that in childhood purely arthriti manifestations of rheumatism might frequently be wantin and might be replaced by such ailments as tonsillitis, chorea pleurisy, muscular pain, exudative erythema, and epistaxis According to the statistics of the investigating committee o the Association, tonsillitis was associated with rheumatism i 25 per cent. of all cases, while the records of the Vanderbil Clinic of New York gave the proportion of cases of tonsillitis in rheumatism as 35 per cent. Recent inoculation experiments by Fritz Meyer in Germany and Frissell of New York pointed to the fact that the tonsils were the pathway for the entrance of the rheumatic organism. Hence careful attention to the condition of the tonsils was especially demanded in all children with a rheumatic tendency. All American authorities were agreed that subcutaneous fibrous nodules, so frequently observed in England in cases of rheumatism, were of rare development in America. With regard to treatment, Dr. Blackader laid chief stress on prophylaxis, correcting tendencies to anæmia, and avoiding over-fatigue. Rest in bed he considered most important. Frequent examinations of the cardiac area should be made, though in his experience severe cases of carditis were not so common in America as in England. He considered that the prognosis of rheumatic heart affections was better in children than in adults.

The following took part in the subsequent discussion: Dr. MCCRAE, Dr. DUKE, Dr. ASHBY, Dr. BAINES, Dr. KERLEY, Dr. HAND, Dr. LA FÉBRA, Dr. CAUTLEY, Dr. KAUFFMANN, and the PRESIDENT. There was a general consensus of opinion that subcutaneous fibrous nodules were not such frequent rheumatic manifestations in America as in England and also that their prognostic significance was not so grave as it used to be considered. The American speakers did not seem to depend so much on treatment by salicylates as we are accustomed to in Great Britain.

The last business of the day's proceedings was a discussion on

Congenital Laryngeal Stridor,

held conjointly with the Section of Laryngology. This was introduced by Dr. A. LOGAN TURNER (Edinburgh). After describing the symptoms of a typical case, he reviewed the various theories which have been advanced to account for the phenomena: (1) reflex laryngeal irritation produced by the presence of adenoids (Eustace Smith); (2) compression of the trachea by an enlarged thymus gland (Avellis); (3) congenital malformation of the upper aperture of the larynx (Lees, Sutherland and Lack, and others); and (4) an ill-coördinated spasmodic action of the respiratory muscles inducing an exaggeration of the normal infantile type of larynx

—an acquired deformity. This was the view which he himself held in common with Dr. John Thomson. They had together examined a number of larynges from stillborn infants and from children up to the tenth year of life, and showed by simple experiments that the malformation which had been regarded by some writers as a congenital one could really be produced by spasmodic inspiratory efforts acting on the soft collapsible structures of the infantile larynx. The crowing sound was produced mainly at the abnormally approximated ary-epiglottic folds. Dr. Logan Turner illustrated his subject by a series of interesting photographs thrown on a screen and by several stereoscopic views.

Dr. Ashby described a case in which congenital laryngeal stridor was associated with an occipital meningocele. The child died at the age of nine weeks and at the post-mortem examination no adenoid overgrowths or enlargement of the thymus were found, and the larynx did not differ in any respect from that of an infant of the same age unaffected with stridor. He was inclined to the belief that in the cases of congenital stridor which he had watched the efficient cause was a neurosis, the result of a disturbed coördination.

Dr. Cautley showed the larynx of a child who had suffered from laryngeal stridor. He did not believe that the condition was due to a neurosis but supported the view that it was due to a congenital malformation of the upper laryngeal orifice.

Dr. Jacobi said that they were too much given to building up theories on a single case and that in his opinion the condition was due to a variety of causes.

Dr. A. Brown Kelly (Glasgow) said that the stridor was not due to vibration of the ary-epiglottic folds but to vibration of a flap of mucous membrane on the summit of each arytenoid.

Dr. Sutherland supported the view that the condition was primary and congenital.

Dr. F. Dundas Grant said he had only had a post-mortem examination in one case, when the stridor was caused by an elongated epiglottis drawn down over the larynx.

Remarks were also made by Dr. Wishart (Toronto), Professor Ingals, Dr. Hudson McEwen, Dr. Porcher (Charleston), and Dr. Chevalier Jackson.

THURSDAY, AUGUST 23RD.

Dr. Kesley (New York) introduced a discussion upon

Entero-colitis in Infants

by the reading of a paper on the Prevention of Acute Intestinal Diseases in Summer. In his opinion the chief etiological factors of the disease were climate and environment, a disordered gastro-intestinal tract, and improper food. He emphasised the importance of education in the prophylaxis of the disease. Mothers should be taught how to feed their infants before the hot weather came on, farmers should be educated as to the supreme importance of cleanliness in the dairy, medical men should be educated in the proper methods of infant dietary, and the consumers should be taught that pure milk could not be obtained in towns for less than 12 to 15 cents a quart. He considered that the mortality from infantile diarrhœa would continue until municipalities established milk depôts at a financial loss and appointed not visiting physicians or trained nurses but women who could instruct mothers how to feed and care for their children.

Dr. J. L. Morse (Boston) followed with a paper on

The Dietetic Treatment of Entero-colitis.

He said that the object to be aimed at was such an arrangement of the food as would starve the bacteria without starving the body. At the commencement of the treatment food should be entirely stopped. Children could bear the withdrawal of food for from 24 to 72 hours or even for longer periods, provided they were given as much water as they would normally get in the food. If they would not take it by the mouth it should be given with a tube or per rectum, and if not retained by the stomach or intestine it should be administered subcutaneously in the form of normal saline solution. When food could be resumed by the mouth he gave either whey or pasteurised buttermilk, which might be strengthened by the addition of cream as the patient improved.

Dr. La Fétra (New York), in discussing the medicinal aspect of treatment, laid stress in the first place on hygienic measures, especially proper clothing and good air. The chief indications for treatment were: (1) to keep up the nourishment of the system without adding to the intestinal irritation; (2) elimination, by the use especially of alkaline sulphates, Glauber's salt being most useful in children over nine months of age (ten grains every hour or half hour for four or five doses); in younger infants or when the patient was very depressed calomel or castor oil should be given, together with colon irrigation or lavage of the stomach; and (3) to allay the inflammation. He considered that atropine ($\frac{1}{1000}$th of a grain given hypodermically every two hours) was an excellent remedy and also that opium was not so much used as it deserved to be. He was accustomed to give it when the temperature was normal and there was no marked toxæmia but yet the diarrhœa did not yield to other remedies. He gave one-fifth of a grain of Dover's powder or five minims of paregoric after each loose stool.

Dr. Shaw (Montreal) read a paper on

A Study of the Absorption of Fat in Infants.

He fully described his methods and illustrated his paper by several charts and diagrams. He said that the irregularity in the quantity of volatile fatty acids found in the fæces during his observations showed that they were not dependent upon any one constituent of the food. In the normal infant the amount of neutral fat in the fæces was very small—0·107 gramme a day in the breast-fed infant and 0·179 gramme in the bottle-fed infant. Most of this was fat that had escaped the action of the fat-splitting enzymes by being entangled in proteid curds. About 4 per cent. of the fat ingested appeared in the fæces in nurslings and 5 per cent. in bottle-fed infants. The fat found in the fæces was to a great extent fat that had escaped digestion. The fatty compounds in the fæces existed as neutral fat, fatty acids, and soaps. The fatty acids were usually in excess of the other two constituents. The soaps were increased in artificially fed infants, in infants with a low percentage of fat in the food, and in infants with *diarrhœa*.

Dr. Ralph Vincent read a paper on

The Milk Laboratory in Relation to Medicine.

He gave details as to the establishment of the Walker-Gordon milk laboratories and outlined the treatment of gastro-intestinal disorders in children at the Infants' Hospital, London. In that institution drugs were almost entirely discarded and such disorders were treated by modification of milk in the diet. He was of opinion that an infant could be reared upon properly modified cow's milk just as well as upon breast milk. He was particularly severe upon the host of artificial infants' foods, the only saving clause with most of them being that after a certain time the infant refused to persist with them and, with a sense of the fitness of things remarkable at an early age, consistently vomited them. He considered that the use or tolerance of patent foods for young infants by medical men was most damaging to the reputation and scientific standing of the profession. The educational influence of laboratory methods on mothers and nurses was very good. The care exercised by the laboratory impressed them with the importance of the subject and encouraged them to understand the real meaning of infantile nutrition.

Dr. Ashby said that the establishment of the Walker-Gordon milk laboratory was almost entirely due to Dr. Vincent's enthusiasm.

Dr. Blackader said that in his opinion much harm was done by taking infants out for what was known as a day's outing when all food required for the day was taken with them and on account of the increased liability to fermentation of the food gastro-intestinal disorders were likely to be produced in this way. He thought that the dread of giving opium in such disorders was carried too far.

Dr. Putnam, Dr. Riddell, Dr. Benedict, and Dr. Knox also joined in the discussion.

Dr. Morse said that he did not much approve of milk laboratories but that if he could get pure clean milk he would as soon have it modified at home. He entirely disagreed with Dr. Vincent's remarks about breast feeding, the importance of which he strongly emphasised.

FRIDAY, AUGUST 24TH.

The closing session of this Section was chiefly occupied with an interesting discussion on

Congenital Pyloric Stenosis.

This was opened by Dr. Edmund Cautley, who dealt with the medical aspect of the affection. He directed attention mainly to two *groups of cases*: 1. Functional pyloric spasm, the main feature of which was severe and continued vomiting without any gastric dilatation or pyloric *tumour*. *Cases of this kind were extremely likely to give* rise to an erroneous diagnosis of congenital hypertrophic stenosis. They usually recovered on a diet of whey with small doses of cocaine internally. 2. Congenital hypertrophic stenosis. He had had 16 cases under his own observation, on the course and results of which his conclusions were mainly based. Almost all occurred during the *first three months* of life, generally during the first month, indicating that the affection was one of very early life, that it did not develop after this age, and was probably congenital in origin. Lack of appetite might be the first symptom but was often overlooked. Vomiting was the chief characteristic; in typical cases two or more meals were kept down and then the whole lot was brought up forcibly and violently ejected, sometimes to a distance of three feet. There was some pain but no nausea and food could be taken almost immediately after. Constipation was usually present; the child wasted progressively, sometimes with extraordinary rapidity, the temperature was *subnormal*, and the pulse small, frequent, and weak, the general appearance being one of whining lethargy, with half-open eyes. The physical signs were visible peristalsis, *dilatation of the stomach*, and a tumour in the region of the pylorus, half an inch to the right of, and three-quarters of an inch above, the umbilicus, of about the size and shape of a filbert. The pathological condition in this affection was a *true hyperplasia, an overgrowth of the* circular muscular fibres of the pylorus. Possibly the condition represented an atavistic tendency, a reversion to an *earlier type of pyloric development analogous to the* "gastric mill" of crustacea and edentata and the "gizzard" of birds. Though he admitted that spasm might exaggerate the obstruction, yet he maintained that it was not the prime cause, and he was not a believer in the "spasm" theory. The prognosis in these cases was extremely bad if treatment was purely medical, even when the obstruction was incomplete. With regard *to treatment in a doubtful case the food should* be as simple as possible, non-irritant, and given in small quantities at a time. In addition, $\frac{1}{100}$th of a grain of cocaine or a *minute dose of opium, say a quarter of a minim of the* tincture, should be given every hour. If there was no improvement in a few days the stomach should be washed out daily with a weak alkaline solution. When the diagnosis was certain operation should be undertaken at once. He regarded the stretching operation as unscientific and dangerous and considered that pyloroplasty afforded the best results. A good *anæsthetist was essential*. Immediately after the operation a rectal feed should be given, one ounce each of peptonised milk and water, with 20 drops of brandy if needed. This should be repeated every four hours for two days every six hours for two days, then twice a day for two days. A teaspoonful of hot water should be given by the mouth every quarter of an hour for six or 12 hours, after that a similar quantity of whey. Subsequently the diet should be slowly increased to two teaspoonfuls every quarter of an hour, half an ounce every half hour, one ounce every hour; and finally two ounces every two hours; *then gradually strengthened by* the addition of cream or replaced by peptonised milk or milk and water, until the child was on an ordinary diet.

Mr. HAROLD J. STILES (Edinburgh) *treated the subject* from the surgical aspect. He reviewed in detail both the normal and morbid anatomy of the parts and said that while he could fully corroborate Professor Cunningham's statement that in post-mortem specimens the normal pyloric canal of the child was usually in the contracted or systolic condition described by Pfaundler, yet he *had no hesitation* in stating that, without exception, all the cases of infantile pyloric stenosis which he had operated on during life, or examined after death, showed an *amount of muscular* thickening of the pyloric canal two or even three times greater than any normal pylorus that he had ever come across. The main fact which concerned the surgeon was that he *had to* do with an organic but purely muscular hypertrophy of the pyloric canal, associated with excessive tonic contraction, aggravated no doubt by more or less spasm, but it was difficult to say whether the latter was cause or effect. With regard to treatment, it was important that medical treatment should not be too long persisted in but that the patients should be submitted to early operation. He detailed the various steps of the operation, laying particular stress on the following points. Shortly before the operation the stomach should be washed out and an enema of one or two ounces of saline solution and from 10 to 20 drops of brandy given. In many cases it was advisable to introduce saline solution subcutaneously *into* both sides of the chest. A good anæsthetist was essential; the anæsthetic should be *chloroform* and ether followed by ether alone. On no account *should* an antiseptic (especially carbolic acid) poultice be applied to the abdomen *even for an hour or two before the* operation, as it had been shown by Dr. Kruger that a lethal dose of the drug might very easily be absorbed by the skin in that time. *The skin incision should not* be more than two inches in length, having its centre midway between the ensiform cartilage and the umbilicus. Great care in the *closure of the abdominal* wound was most important in order to avoid the risk of the wound *bursting open after it* had firmly healed or the occurrence of ventral hernia. The abdominal wall was so thin that suturing in layers was out of the question. *Interrupted sutures of fishing gut should be* used; they should be passed through the whole thickness of the abdominal wall and one extremity of each threaded with a *piece of thin rubber tubing* half an inch in length and tied in such a way that the portion of the loop which overlay the skin was surrounded by the tubing in order to prevent the suture cutting its way through the skin. Mr. Stiles described the various operations which had been undertaken for congenital pyloric stenosis—viz., (1) *Loreta's Divulsion* operation, the great point in which proceeding was *that it should be done gradually yet thoroughly*. Out of a total of 29 divulsions which he had been able to collect there had been 15 recoveries—a little over 50 per cent. (2) *Gastro-enterostomy*, in which he recommended the posterior operation. He had collected 37 cases, with 16 recoveries (43·2 per cent.). (3) *Pylorectomy*. He had only had one case, which died from shock, and he considered it an unnecessarily severe procedure. (4) *Pyloroplasty*. He had only performed it once, unsuccessfully, but it was the operation performed and recommended by Mr. Clinton Dent who had operated in Dr. Cautley's cases. He had five *recoveries* out of 11 cases (45·4 per cent.). There were two other operative procedures employed by Mr. Nicoll—viz., a combination of divulsion with gastro-enterostomy, and a modified *form of pyloroplasty*, which he described in the author's words. Five out of six cases operated on by this method recovered. It seemed to him that cases of pyloric stenosis should be *divided into* two distinct groups—*viz*., (1) the purely spasmodic, without any hypertrophy, which might be expected to get well under dietetic and medical treatment, and (2) the true congenital hypertrophic, *which* must assuredly die unless surgical treatment were resorted to. He believed that there was also an intermediate group, in which the hypertrophy *although* present was less marked. It was these cases which had led to the confusion and difference of opinion regarding the pathology and treatment of the disease. He would *advise* a diagnostic incision in all cases in which the diagnosis was doubtful and medical treatment afforded no relief. If there appeared to be distinct though not marked hypertrophy and the infant was very young and weakly, he would be contented with divulsion. When there was marked hypertrophy and the patient's general condition was satisfactory the choice lay between pyloroplasty and gastro-enterostomy and the surgeon would no doubt choose the procedure of which he had had most experience.

In the discussion which followed Dr. PUTNAM (Boston) *gave* details of a case which he had successfully treated by forcible dilatation with a uterine dilator. The tissues torn by the rupture had been closed by sutures.

Dr. ROBERT HUTCHISON (London) expressed profound disagreement with the views of Dr. Cautley and Mr. Stiles. During the last two years he had seen eight well-marked *cases* of the disease, all of which recovered under medical treatment. So long as such a series of cases could be produced operation could never be *regarded as the best treatment* in the early stage.

Dr. ASHBY mentioned two cases in which post-mortem examinations had been held and *showed a specimen*. He did not feel justified in urging operation in these cases though he might recommend it.

Dr. KERLEY said that he was particularly interested in Dr. Hutchison's remarks. He had lately had a case presenting all the classical signs of pyloric stenosis which recovered completely with small quantities of breast milk and daily lavage. If no improvement occurred under suitable medical treatment he would *recommend an exploratory* operation.

Dr. PRIMROSE (Toronto) suggested that dilatation of the stomach was the primary factor and *that the pyloric stenosis* was caused by the difficulty in overcoming the mechanica effects of dilatation. He thought that some surgical procedure might be devised in order to diminish the size of the dilated stomach and avoid the risks of gastro-enterostomy or pyloroplasty.

Dr. VINCENT said that, in his opinion, the presence of a palpable tumour was an essential point in the diagnosis of these cases. He did not agree with Dr. Hutchison's views and could not accept the diagnosis of stenosis in the cases which he had mentioned.

Dr. MACHELL said that cases of congenital pyloric stenosis were not common in Toronto This was evidenced by the fact that up to the present no case had been admitted as such into the Hospital for Sick Children, Toronto. The same applied to the Infants' Home, where many of the infants were nursed and looked after from birth up to two years of age.

Remarks were also made by Dr PORTER (San Francisco) and by the PRESIDENT, and Dr. CAUTLEY and Mr. STILES briefly replied.

The business of the section concluded with a paper by Dr. ALBERT E VIPOND (Montreal) on

The Glandular System in Infectious Diseases

He discussed in detail the significance of enlargement of the lymphatic glands in the various infectious diseases and pointed out that as this enlargement appeared some days before the development of the diseases it formed a valuable aid to diagnosis and enabled isolation to be carried out more

passport to the wise men assembled in solemn conclave at Apothecaries' Hall. This body of self-elected Examiners (being a century behind the better educated general practitioner in literary and professional acquirements) have scarcely intellect sufficient to enable them to undertake an adequate professional examination. Creatures, therefore, of this mediocre description, *pass* as a *matter of course;* and apothecary being now legally tacked to his name, surgeon also is immediately appended, and then the bluster and pomp of a new and important office is observed to commence.

A fellow of this origin and character (called, perhaps, in the absence of a better-informed practitioner, to a case strictly under his neighbour's care) commences with denouncing, in a bold and clamorous manner the measures which have been pursued, and promises to cure the patient in quick time. Nature kindly seconds his impudent pretensions, and this daring charlatan, in spite of his own mischievous principles, (if, indeed, he have any to direct his treatment,) exults in finding, by an unexpected and propitious *turn up*, he has out-witted his less arrogant and pretending rival, and obtained credit for superior discernment in that circle to which he has been, by mere accident, introduced.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 29, 1906.

What is Specialism?

OUR correspondence columns have lately borne abundant testimony to the interest taken by the medical profession in some of the modern developments of what is vaguely called "specialism," and in questions connected with the methods by which this "specialism," in some one or other of its varieties, may be embraced as a declared and legitimate limitation of the intended field of action of a practitioner, carrying with it, as it unquestionably does, a definite claim to the possession of more than ordinary skill and knowledge concerning the subjects covered by its title. Some of our correspondents have enlarged upon the difficulty of establishing a "special" practice, and one has gone so far as to describe a large proportion of "specialists" as being, at least for a time, persons who are ignorant of everything in general, the so-called "specialism" not excepted, until they have had opportunities of learning something about the particular branch of practice to which they propose to devote themselves. To put the matter quite simply, we believe that much of what is called specialism is a consequence of demands created by the ignorance of the public rather than of any legitimate division of labour in the profession; and that it behoves both the leaders of medical opinion and the guides in whom the public repose most confidence to contend, so far as they are able, both against the artificial multiplication of so-called "specialisms" and against their being used as stepping stones to exceptional practice.

"Specialisms" are roughly of two kinds, those for the practise of which some form of knowledge is required which has no applicability to the diseases of other portions of the body, and those which are mere limitations, and in which the practitioner applies the ordinary principles of medicine, of surgery, or of therapeutics, within a restricted area. The former kind includes ophthalmology and otology; the latter includes certain natural divisions, such as gynæcology and dermatology, but these may be indefinitely and undesirably increased in number by the caprice of any practitioner who chooses to say that he will confine his practice to certain conditions of the system or to certain structures or regions of the body. Men who commence practice with no intention of becoming specialists may yet be guided into some particular department almost by accident; and as they acquire distinction in it may find that their services are but little sought after in other directions. In such cases they lapse into specialism gradually, and sometimes unwillingly, and it may be long before they lose either the possession of general professional knowledge or the desire to exercise it. For obvious reasons we will not speak of living persons, but we need not go far back in medical history to find good illustrations of our meaning, drawing those illustrations from ophthalmology, the best example of definite specialism. The late Sir WILLIAM BOWMAN was surgeon to King's College Hospital and teacher of physiology in the school. His attention was first directed to practical ophthalmology when doing his admirable work as a physiologist on the minute anatomy of the eye, and on the early death of Mr. DALRYMPLE he stood forth as his obvious successor. The late Mr. CRITCHETT, again, had become senior assistant surgeon to the London Hospital before the amount of eye practice coming to him by reason of his connexion with the Royal London Ophthalmic Hospital induced him to abandon general surgery, in which he had already made his mark as an accomplished diagnostician and a brilliant operator. These gentlemen were "specialists" of a perfectly legitimate kind. They were surgeons completely equipped with professional skill and knowledge, and they were induced by circumstances to confine their activities within the limited field which they cultivated with untiring assiduity and to the great advantage of the public. Their patients would not have derived any benefit if Sir WILLIAM BOWMAN or Mr. CRITCHETT had continued to make occasional excursions into the fields of lithotomy or herniotomy but undoubtedly derived great benefit from the knowledge of the general principles of surgery and of therapeutics possessed by the famous ophthalmologists, and from their ready appreciation of the influence of constitutional upon local conditions. We hold that no man should voluntarily limit himself to a single branch of professional activity until he has so far gained experience over the whole field as to be able fully to appreciate the influence which may be exerted by such conditions as constitutional syphilis or a gouty diathesis over the changes produced by disease or treatment within the boundaries which he specially affects. If this opinion be well founded, it follows that too early a limitation of the field of practice is more likely to be injurious than to be useful and that it is, generally speaking, an error of judgment for a young man to start in life with the idea of becoming a specialist. If he does so, he should at least realise the necessity of gaining wide experience and of keeping himself abreast of progress in all departments of the profession.

It is not the least of the mischiefs of specialism that, by marking off certain areas as the property of a few individuals, it has some tendency to induce general practitioners to neglect these areas and to be contentedly less conversant than they ought to be with the matters contained within their boundaries. If we are to have new limitations set up (and the tendency of the present day seems to be in that direction), if we are to have a specialist for dyspepsia, and specialist for obesity, and a specialist for the liver, and a a specialist for gout, and a specialist for the heart, what will be left about which the general practitioner may be expected to possess ample knowledge, and where and by what means will it be possible to train up such men as JENNER and GULL and ANDREW CLARK for the benefit of future generations? The whole question is, we think, one concerning which the profession should strive to educate the public. The human body does not admit of being parcelled out ir diseases of the great toe, is not likely to justify the confidence for which he asks, unless he is thoroughly conversant with the ways and directions in which the state of the great toe may be influenced by the general bodily health, or may exert influence upon it in turn. With regard to those of our correspondents who inquire as to the methods by which they may legitimately make known to what malady or to what portion of the body their energies are to be devoted, or even the fact that they do propose to limit their activities in such a manner, we fear we have no suggestion that would be of practical value. The main objection to all the devices which we have ever seen for informing the public of an intention to specialise is that they savour of trade and of trade competitions. It is incumbent on all who practise medicine to emphasise the fact that our calling is not a mere trade. Its members must merit and win the esteem and confidence of the public as a profession of honourable gentlemen, scrupulously excluding from their ranks everything that savours of pretentiousness and self-assertion. We cannot run with the hare and hunt with the hounds. We must stand absolutely aloof from the devices of competition or we must submit to be submerged by them.

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The Perils of Vagrancy.

JUST as an organism cannot be called healthy if any part of it be the seat of disease, so the body politic is defective if any class or section of it be living in unsatisfactory conditions. Much attention has recently been directed to the increase which has taken place in the number of social outcasts, collectively designated as tramps or vagrants, and it is to be hoped that a serious effort will shortly be made to deal with the problem presented by the existence of this class. It is not only on philanthropic grounds that steps in this direction are urgently called for; the mere instinct of selfishness or prudence dictates to the well-to-do portion of the community the necessity for abating the evil, when it is considered how often outbreaks of epidemic disease have been traced to infection carried by tramps, and how great and preventable a sacrifice of lives and money is thus incurred. But as in the case of physical disease, so here it is impossible to devise adequate remedies for the condition in question until we possess exact knowledge of the pathology—the causation and real nature—of the social defect. Until we obtain such knowledge it must be impossible to apply other than empirical measures of relief. Symptoms have been combated, outward manifestations suppressed, but the root of the evil has remained unaffected. Severe measures may have succeeded, in particular localities, in diminishing the number of admissions to the tramp wards of the poorhouses, but the total number of vagrants throughout the country has continued to increase, and will, we fear, increase until some great and organised measures of relief can be devised.

The study of the problem of vagrancy has been defective owing to the difficulty presented by attempts at investigation. The class of tramps is an unsavoury object of research and its members are generally suspicious of inquirers and unwilling to discuss their circumstances and the causes of their submergence. From time to time some enthusiastic inquirer has descended into the abyss and passed as a tramp for the nonce—some journalist in search of copy, *audax omnia perpeti*, or some amateur philanthropist; but owing perhaps to lack of training in social problems the fruit of their investigations has been so far small. A serious attempt to grapple with the question by personal research among the outcasts themselves has recently been made by one well-qualified to turn the knowledge gained to good use and able to formulate suggestions for reform in our mode of dealing with the class of wanderers. In a volume entitled "Glimpses into the Abyss"[1] Miss MARY HIGGS relates her experiences as a denizen of many casual wards and humble lodging-houses and offers some practical advice as to the cause of the tramp evil and the best mode of dealing with it. Miss HIGGS's book is tragic enough, but there is no piling up of horrors to make a lurid story more revolting or more pathetic. It is obviously a record of first-hand and searching scrutiny, by one who is quick to see, well equipped to observe, and fearless in putting her impressions to the test. A study of her work cannot fail to correct some of the errors into which the uninitiated person usually falls, for she throws a new and instructive light upon the question of the attitude to be adopted towards the roving population which forms the lowest stratum of our civilised state. It is too often assumed that all "tramps," the dilapidated specimens of humanity met with on the high roads walking wearily from town to town, are Ishmaels who have taken to the vagabond's life owing to laziness of disposition, who exist by begging and terrorising the cottagers along their route, and who are enabled to live in unmerited comfort owing to the mistaken leniency of our system of Poor-law administration. That there are a considerable number of individuals who would fairly answer to such a description is unfortunately true enough but Miss HIGGS supplies evidence that goes far to prove that these persons form a comparatively small proportion of the vagrant population. Most of those who claim the shelter of the casual ward are of distinctly higher type. They consist of workers who are unemployed but who are honestly willing to work if they can find suitable occupation. When this truth is once pointed out it is not difficult to see that there must be a large number of such unfortunates wandering in search of work. One of the assumptions of the political economist is that capital and labour are both mobile and readily able to migrate from one industry to another. How false this assumption is in the case of the individual labourer is gradually being discovered. A skilled workman thrown out of work is a wasted asset of national wealth. Even the unskilled has to transfer himself painfully to some other locality to find work, and to do so he must tramp on foot if he has not money enough to pay a railway fare. Just now the number of unemployed is large, for many industries are declining and few new ones seem to arise to take their place; hence the number of men who are out of work and obliged to wander in search of employment is also large. What is the prospect for such a vagrant, an honest man at the outset of his migration? He must repair to the tramp ward to be herded with the dirty and the vicious. Miss HIGGS shows that the hospitality which he will receive at the hands of certain authorities is not calculated to leave him a particle of self-respect or much chance of remaining the average good citizen that he may hitherto have been. He may be given food far worse than that supplied to criminals in prison and insufficient to keep up that modicum of strength with which he set out to look for work, and on this food be expected to perform a task of labour harder than that of a convicted felon. The alternative is the common lodging-house and Miss HIGGS shows that in these places such a vagrant may be lodged in insanitary quarters, left unprovided with the essentials of common decency, and compelled to sleep in a garment which has already been worn by an unknown number of dirty predecessors in misery, amid verminous companions, on a bed seemingly contrived as an instrument of torture. Little wonder, where such things occur, if a few weeks of the life make of a respectable workman a despondent outcast or a criminal. For the woman who has fallen on evil days it is even worse. She is irresistibly driven to a life of prostitution when the pressure of poverty is aided by the constant association with abandoned characters. We know that medical men have done all in their power to remedy maladministration of the law, and over and over again it has been pointed out that a badly kept tramp ward is a focus of danger to the community; but the abuses remain, and the assistance of Government will be required to deal with them systematically.

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[1] Glimpses into the Abyss. By Mary Higgs. London: P. S. King and Son. 1906. Pp. 331. Price [illegible] net.

Upon Miss HIGGS'S excellent observations certain indications follow for improving the state of things now prevailing in parts of the United Kingdom. First of all it is necessary to discriminate between the hopeless loafer who will not work, the true worker in search of a job, and the man who is physically unable to earn a living by manual toil. This may not seem easy of accomplishment but it is not so difficult as appears. The last class can be detected only by careful medical inspection, but being so identified can be more or less eliminated. Then if a reasonable task were set to all applicants for relief the able worker would willingly perform it and should thus earn for himself a substantial meal and clean sleeping accommodation. The idler who refused or scamped the work should be treated as the social danger which he actually is and sent to prison or to some labour colony of a penal type. Miss HIGGS would have the seeker after employment helped on his way by the provision of a ticket entitling him to food and lodging in return for a task of work at the next station on his road, while by some system of public labour bureaux information as to hands needed in particular industries in different parts of the country should be made available to all. Here Miss HIGGS is in line with every practical thinker; the suggestion has been plentifully made and has been supported in our columns before now. Much might also be done for those who are not absolutely indigent by provision of cheap yet sanitary lodging-houses in which they could find accommodation while looking for work, thereby avoiding the common lodging-house as it now exists. Common lodging-houses require far more exacting scrutiny than they receive, and to this end we would urge upon the Government the absolute necessity of giving some security of tenure to medical officers of health. Common lodging-houses are frequently valuable private property, from which category we omit those managed—and for the most part admirably managed—by the Salvation Army, and in the present state of the law it may be impossible for a medical officer of health to obtain an abatement of abuses which stare him in the face. The tramp wards of our workhouses, despite Miss HIGGS'S unfortunate experiences, are not the source of public danger that the institutions controlled by private persons for private profits are known to be. The medical officer of health, for every conceivable reason of public policy, ought to be set in a strong position to deal with these places.

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The Registration of Opticians.

REFERENCE has frequently been made in our columns to the ambitious schemes of opticians, as well as to a Bill before Parliament for the purpose of registering opticians and thus supplying them with an official and professional status. This apparently harmless procedure really means the licensing of working opticians, druggists, and others who have received no medical education, to prescribe spectacles. The opposition to the Bill by the medical profession is being put forward by a joint committee of the Ophthalmological Society and the British Medical Association, and we may be sure that in their hands the logical arguments against such an anomaly will obtain proper prominence. The matter is one which affects the majority of general practitioners and not only the ophthalmologist, for the principle at stake is no less than the infringement of the rights and the prerogatives of the medical man. The public are as yet ignorant in matters of this nature. Too readily they fly off to the prescribing druggist for an aperient pill or a headache powder, or to the optician for spectacles, and their ignorance prompts them to see in the protests of medical men only a selfish resentment. We do not say that medical men are more altruistic as a class than other citizens —whatever we may think, but it is certain that unqualified medical practice of all sorts is perilous to the public weal. We return to the subject of the registration of opticians with the hope that the continual discussion of the matter will make the true position more evident to the public.

In the *Ophthalmic Review* for September of this year Dr. A. FREELAND FERGUS states the case for the medical man in much the same terms as it has been frequently stated before by our medical contemporaries and ourselves. He rightly observes that "no one is competent for ophthalmic work who has not had a very extensive training in the profession of medicine generally." He points out that registration might prevent the totally unqualified optician from prescribing glasses but questions "very much if any such legislation will be put on the statute book." We consider that it is about as probable as preventing druggists from prescribing. But Dr. FERGUS regrets that there is no British diploma or degree giving to its holder a qualification in ophthalmic medicine and surgery, and here we are not prepared to follow him. He would have a special register for ophthalmologists like that for dentists, separate from the general Medical Register. He advocates a very extensive curriculum for the ophthalmologist. The ophthalmic student should, in his opinion, have a thorough knowledge of plane trigonometry and some idea of the

pumping-station and the chalk formation underlying may at any time supply a mixture which will speedily be distributed to hundreds of thousands of water consumers with results too deadly to contemplate." Mr. Sandeman then refers to "myriads of flies and thousands of rats," which this refuse has been instrumental in attracting and to the risk which is thereby incurred of the distribution of fly- and rat-borne disease into houses. Although perhaps Mr. Sandeman is allowing himself a little latitude in certain directions, more especially, perhaps, in speaking of *midden* refuse—if he uses this term as implying the presence of human excreta—we can fully sympathise with him. The refuse in question is, we expect, ashbin refuse, which as a rule contains, in addition to ashes, much vegetable and some animal waste, a combination which is always liable to produce a peculiar condition of sore-throat and may at times give rise, by wind- or fly-borne infection, to diarrhœa or diphtheria, or conceivably, through infected rags and such-like, to enteric fever, an aspect of the question which is rendered more serious in this instance by the circumstance that the refuse is alleged to be in the vicinity of a chalk well supplying a very large population with drinking-water. Risk in this sense depends, however, upon the extent to which the chalk formation is fissured and uncovered by any impermeable formation. The remedy may be difficult, especially if the refuse is used for any industry such as brick-making, in which case action under Section 91 of the Public Health Act, 1875, might fail on the pretext "that the accumulation or deposit has not been kept longer than is necessary for the purposes of the business or manufacture and that the best available means have been taken for preventing injury thereby to the public health." If, for instance, the refuse were carefully covered over with earth so as to prevent disturbance by wind or carriage of filth by flies it might be held that the best available means had been taken. But if this were the case in the present instance it is unlikely that the nuisance would be detectible "for over a radius of a mile." The question as to whether the nuisance is one which might be dealt with by means of by-laws under Section 44 of the Public Health Act, 1875, would depend upon the precise position and source of the accumulation here in question. But we would advise Mr. Sandeman to procure a copy of a report on manure nuisances[1] which was made to the Local Government Board by Dr. H. Franklin Parsons as this may, we think, help him to devise a means of attacking the nuisance of which he complains. It is, of course, much easier to deal with nuisances of this nature in an "urban" than in a "rural" district, and we fear that in this case a "rural" area may be in question. But in many "rural" areas the conditions are in places practically "urban," and if this be so in this instance it may be easier to remedy matters.

THE FRENCH SURGICAL CONGRESS.

The Nineteenth Congress of the French Association of Surgery will be held at Paris from Oct. 1st to 6th. The President is M. Monprofit of Angers, professor at the Angers School of Medicine and surgeon to the Hôtel Dieu of the same town. The Vice-President is M. Berger, professor at the Faculty of Medicine and surgeon to the Necker Hospital. The general secretary is M. Charles Walther, Professor Agrégé at the Faculty of Medicine and surgeon to the Pitié Hospital. The three special subjects for discussion are: (1) surgery of the large venous trunks; (2) ways and means of access to the thoracic cavity from the point of view of operation; and (3) ectopy of the testicle and its complications. During the congress an exhibition of surgical instruments and of surgical dressings and the like will be on show, and show-cases will be provided for members of the congress for the purpose of exhibiting instruments or apparatus. The list of members of the congress includes a number of foreign surgeons as well as most of the French surgeons, and we are sorry to see that among the foreign surgeons those from our own country are in a decided minority. We regret this all the more inasmuch as those of our countrymen who have visited the congress always return with nothing but praise for it. The scientific side of the meeting is not interfered with by excess of hospitality, but such hospitality as there is is carried out with a grace, kindness, and thoroughness which our neighbours across the Channel know so well how to show. Possibly the date of the meeting being the first week in October makes it somewhat difficult for British surgeons to attend, but we hope in future that the names of British surgeons will be conspicuous in the list of members by something else than their absence.

SHOWER BATHS IN SCHOOLS.

At a meeting of the Medical Officers of Schools Association held on June 14th Mr. Frederick Rose, a gentleman connected with the education department of the London County Council, read a paper on the Use of Shower Baths in Schools in England and on the Continent. In this paper, which has now appeared in pamphlet form,[1] Mr. Rose says that warm shower baths with soap, followed by a moderately cold douche, form the ideal system for cleansing and stimulating the bodies of school children. The cleansing process is more thorough than in any other practical system, the dirty water is instantly carried off, fresh water is constantly supplied, the danger of infection is obviated, and the physiological action of the water is rendered most effective. Slipper baths are out of the question for large numbers of children, being too slow, costly, and capable of conveying infection; the invigorating effect is, moreover, entirely wanting, as the bathing takes places in stagnant water at a constant temperature. Mr. Rose considers that all children in elementary schools should have at least one shower bath per week. The propagation of infectious diseases in schools would thereby be decreased and the habit of cleanliness once acquired would remain with most of the children throughout their lives. Shower baths have been adopted for schools in Germany, Austria, France, Switzerland, Belgium, Holland, Norway, and Sweden, but in the elementary schools of Great Britain and Ireland the only shower baths provided are four douches at the "Pulteney" School, Shaftesbury-avenue, London, presented to the school some years ago by the Hon. Dudley Campbell. In Bradford the swimming baths are supplied with a small number of douches and all persons are required to use them before entering the swimming pool but no system of shower baths has been introduced. Swimming instruction is given to school children in Edinburgh, Glasgow, and a few English provincial towns besides Bradford but shower baths are not provided. In Germany the circumstances are quite different. To quote only three cities, out of 283 elementary schools in Berlin 62 are provided with shower bath installations; of the 30 elementary schools in Frankfort-on-the-Main 26 have shower baths; and in Munich 35 out of 53 elementary schools have shower baths. In the German schools the shower baths are completely free and no compulsion is used. The bathing takes place during school hours, but generally not during the last hour, so as to diminish the possibility of chills being contracted. In some towns the children bathe with bathing garments, but in other towns without them. In some towns they bathe entirely in common; in other towns a certain number of undressing and douching boxes are provided for the older children; and in a few towns, notably Cologne, separate undressing and douching boxes are provided for all children without exception. The average duration of a bath seems to be from 20 to 30 minutes; the showers are generally started at about blood heat and gradually reduced to a temperature varying from 55° to 70° F. As a rule the children stand in a large shallow trough during the douching operation and the douching itself is carried on either by means of single sprays to each child or by sprays which cast the water further apart and form a kind of rain. In the newer German public swimming baths no persons are allowed to enter the swimming pool without having previously soaped and washed themselves under the douches provided for this purpose. Mr. Rose states that the half hour devoted to shower baths per week has amply repaid itself in the improvement of the clothing and health of the children; it seems probable that it has also produced an increased capacity for learning, as well as some diminution of verminous conditions, skin diseases, and infection. In conclusion, he makes a variety of suggestions and estimates with respect to the construction and the use of school shower baths.

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[1] Extracts from the Annual Report of the Medical Officer of the Local Government Board for 1891-92. On Manure Nuisances, by H. F. Parsons, M.D. Eyre and Spottiswoode.

[1] London:

THE PREVENTION OF SMOKE IN LONDON AND IN PROVINCIAL TOWNS.

Is there any reason why certain provincial towns should apparently be exempt from that clause of the Public Health Act which provides that "any fireplace or furnace which does not as far as practicable consume the smoke arising from the combustible used in such fireplace or furnace and is used for working engines by steam or in any mill, factory, dyehouse, brewery, bakehouse, or gaswork, or in any manufacturing or trade process whatsoever" shall be deemed to be a nuisance liable to be dealt with summarily and a penalty imposed? Commendable work in the direction of abating the smoke nuisance in and around the metropolis has during recent years been done owing to the vigilance of our health authorities, who have been stirred to exercise their duty in this matter by the revelations published in THE LANCET and by the action also of the Coal Smoke Abatement Association under the presidency of Sir William Richmond. The condition of the London atmosphere has undoubtedly improved during recent years owing to a decided abatement of the smoke nuisance, and we utterly fail to understand why a similar improvement is not attempted in provincial towns and especially in those which are the centre of busy manufacturing areas. We may refer to Nottingham as a brilliant exception, for there, we believe, the lace manufacturers were compelled to abate the smoke nuisance purely in their own interest, for the smoke spoiled their goods. The shortening of lives by a compulsory existence in air intensely and constantly polluted with smoke is a much more serious matter than the spoiling of lace. The example of Nottingham is a splendid object lesson and proves absolutely that the smoke nuisance from factories need not be. Yet we still have "the black country" with us as smoke-besmirched as ever. The condition of the air between, say, Wolverhampton, to give one example, and Birmingham is a disgrace to any civilised community. Smoke of the filthiest description hangs as a dark pall for miles, absolutely shutting out the sun and the sky. Thousands of chimneys pour forth torrents of black smoke. "Torrents" is no exaggeration, while to say in the words of the Act that these chimneys send forth "black smoke in such quantity as to be a nuisance" conveys but the feeblest impression of the real state of affairs. Under this pall at intervening places like Dudley, Oldbury, West Bromwich, and elsewhere, thousands of work-people, men, women, and children, take their recreation, and it is pitiable to witness under what intensely impure conditions of the air these people attempt to preserve a healthy body. The pollution of the air is as much a scandal as the pollution of water and food, and the interference of the State is badly and instantly wanted in order that this wanton and wholesale defilement may be stopped. It would be idle to deny that this evil is a serious factor in the high rate of mortality which smoke-drenched districts commonly show.

FOREST FIRES IN SOUTHERN EUROPE.

WITHIN the zone bounded on the north by Grenoble and Toulon and on the south by Algiers, on the west by Logrono in Spain and on the east by Catanzaro in Italy, there have been, coincidently with the recent heat wave, a series of forest fires disastrous to all these countries, but more especially to Italy and Spain, where the problem of replanting the denuded hillsides is of clamant urgency. Reckless tree-felling in both peninsulas for carpentry in all its branches and not least for fuel has reduced immense tracts of territory to prairie or to what the Italians call "macchia"—that is, stunted forest growth, useful neither for timber nor for fuel, and rendering tillage or even pasture difficult and precarious. This fatal practice has been going on for centuries—changing the climate for the worse, rendering the rainfall uncertain, between autumnal inundations and summer droughts, circumscribing agriculture, and spoiling the amenity of the landscape. Spain was an early sinner and suffered in this respect, her timber becoming prematurely exhausted, so as even to restrict her ship-building and gradually to diminish, if not to extinguish, her mercantile marine. Italy has sinned and suffered still more—for this among other reasons that, having become for half a century the winter resort of the northern races with their craving for heating and fuel, she is exposed to a drain on her forest-growth from which other countries are exempt. The *Vox Urbis*, an able Latin journal published in Rome, devotes in its current number a leading article to the subject—"De Silvis Lege Tuendis"—and points out to Italy how sorely she needs "to take a leaf," literally so, out of the trans-Alpine book. While on her own side of the water-shed her rivers are gravel pits for ten months of the year, thanks to the excessive floods of the other two—in low water, so to say, after a "run on their own banks"—the corresponding streams on the Swiss side maintain a steady, equable flow, in summer as well as in winter, and this because of the wise law, stringently enforced throughout the Confederation, that no tree shall be felled without its replacement by the planting of another. By this means the conservation of moisture, its gradual, almost imperceptible, evaporation, and its no less gradual descent in showers, keep the rivers regularly supplied all the year round, not only preventing floods but turning the said rivers into agents for the development of electric energy and making their banks the seat of prosperous and multiplying factories of the steel and iron and other industries. Poor Italy, on the contrary, having no such law and, late in the day, beginning vigorously to enact, if feebly to enforce, an imitation of it, has the mortification of seeing her water-supply alternating between short-lived inundation and prolonged drought with all their disastrous consequences and, unkindest cut of all, the electric agency which, through Galvani and Volta, Nobili and Matteucci, she made known to the world, utilised by a rival power on the northern side of the watershed—taken out of her hands indeed—as an industrial and lucrative force, sorely as she needs new outlets for enterprise and sources of gain. Late in the day, we have said, has she awakened to her suicidal treatment of her woods and forests and now realises that, thanks to the floods that, in the autumn especially, devastate her hillsides and plains, the binding soil required for replanting those hillsides is washed away and the task of reafforesting becomes next to impossible. Within living memory the Sabine range so conspicuous from Rome and so dear to the scholar for its associations with the Lucretilis and Ustica of Horace was waving with foliage, a welcome retreat in the dog-days, when—

> "...... Pastor umbras cum grege languido
> Rivumque fessus quaerit et horridi
> Dumeta Silvani, caretque
> Ripa vagis taciturna ventis."

Now, owing to the increased demand for fuel in the ever-multiplying hotels and *pensions*, that mountain slope is bare limestone, reduced to bed rock on which planting is impracticable. When reafforesting has thus become Italy's "prima cura," when every tree is precious and likely to become more so from the difficulty of replanting, we can understand the bitterness with which Italians read of woods on fire ("boschi in fiamme") in Liguria, in Calabria, even under the shadow of the Vatican itself, where many roods of plantation on the lower spurs of the Janiculars were the other day reduced to charcoal. Dr. Angelo Celli, professor of public hygiene in the Roman School, is, we are happy to see, "keeping at" the Government for the conservation of existing woods, the replenishment of those so sadly thinned, and the resuscitation of such as are no more. From his seat in Parliament he has extorted promise after promise from the Ministers of Agriculture and of Public Works that the legislation in this sense, so thorough in theory, should become as thoroughly efficacious in practice. Our sympathies are quite with him. Pity it were that the agitation for new ironclads and "destroyers" should override the young movement for reafforesting, that the clamour for quick-firing guns and field batteries of a novel type should drown the appeal of Hygieia, echoed by the wail of the Hamadryad.

PRESERVATIVES IN MILK.

THE Local Government Board for Scotland has issued to the clerks of local authorities a letter directing their attention to the subject of the addition of preservatives to milk. This matter was carefully considered by a departmental committee of the Local Government Board for England. In its report the committee stated that preservatives were objectionable on the ground of public health and were also unnecessary for the purposes of the milk trade. The Local Government Board for Scotland accordingly suggests that the local authority should cause samples of milk to be taken with a view to ascertain the presence of substances commonly in use as preservatives—e.g., formalin and boron substances. When such samples are forwarded to the analyst he should be informed of the purpose for which they have been taken. It is suggested that the local authority should first warn milk traders that action will be taken under the Sale of Food and Drugs Acts in instances where preservatives are reported in milk, and should thereafter, when the presence of any added preservative is reported in a sample of milk, regard the case as one for the institution of proceedings under these Acts. In some districts in England, action under Section 6 of the Sale of Food and Drugs Act, 1875, has been frequently and successfully taken in such cases, it being held that, when a purchaser asks for milk and is supplied with milk *plus* a preservative, he does not receive an article of the nature, substance, and quality demanded, and is prejudiced thereby. Vendors of milk may attempt to evade a prosecution by making a declaration that the milk contains some added preservative and the Board suggests the desirability of sampling in such cases. The nature of the declaration made should in all cases be carefully recorded by the officer taking the sample and should also be reported to the analyst when the sample is transmitted for analysis. Where preservatives are reported in milk thus sold the question will arise whether, in view of the nature and quantity of the preservatives added, it can be considered that the article has been rendered injurious to health, or that the purchaser has been prejudiced to an extent which would justify the institution of proceedings under Section 3 or Section 6 of the Sale of Food and Drugs Act, 1875, notwithstanding the declaration made at the time of the purchase. In this connexion the Board is advised that, as regards formalin and boron preservatives, the presence in milk of formalin to an amount that is ascertained by examination *within three days of collecting the sample* to exceed 1 part in 40,000 (1 part of formic aldehyde in 100,000) raises a strong presumption that the article has been rendered injurious to health and that the purchaser has been prejudiced in the above sense. Similar presumption is raised where boron preservatives are present in milk to an amount exceeding 57 parts of boric acid per 100,000, or 40 grains of boric acid per gallon. It is also suggested that the addition of preservatives to skimmed milk, separated milk, and condensed milk should be watched and controlled on similar lines. A similar letter was issued by the Local Government Board for England in July last and was referred to in an annotation in THE LANCET of July 21st, p. 178.

PHLEGMONOUS ENTERITIS.

PHLEGMONOUS gastritis is a very rare disease but phlegmonous enteritis is still rarer; only seven cases appear to have been recorded. In the *Johns Hopkins Hospital Bulletin* for August Professor W. G. MacCallum has reviewed the literature of the subject and reported the following case. A negro, aged 75 years, was taken to hospital complaining of pain in the abdomen and vomiting. Three weeks before he was struck by a car in the street and taken to hospital with a scalp wound. For a week he remained in hospital and complained of considerable abdominal pain. He returned home and appeared to be quite well until the day before his second admission, when he awoke with pain in the abdomen. On admission he indicated the site of pain as the right lower ribs, the epigastrium, and the left flank. Every few minutes he regurgitated without effort yellowish bile-stained fluid of a foul, faintly fæcal odour. He looked ill, the tongue was moist, and the lips were dry. The abdomen was full but not distended and there was bulging in the flanks. On deep palpation there was general tenderness which appeared to be slightly greater below the umbilicus. There was relative dulness in the left flank. Peristalsis was visible over the abdomen. The temperature was 100° F., the leucocytes were 24,000, and the urine contained albumin and numerous granular casts. Because of the signs of obstruction laparotomy was performed. On the left side of the abdomen was a slight excess of turbid fluid. The beginning of the jejunum was markedly thickened, had a brawny appearance, and was a little darker than the surrounding bowel. On palpation much enlarged rugæ could be felt. The serous covering was slightly injected, had lost some of its gloss, and showed a few fine flakes of fibrin. Death occurred on the following morning. At the necropsy the mucosa of the stomach was found everywhere thickened, studded with mushroom-like polypoid masses, and covered with thick mucus, and it showed abundant ecchymoses. Just below the pyloric ring were one or two small, irregular, punched out ulcers. The intestine was greatly enlarged from a point about five centimetres below the pylorus for a distance of 30 or 35 centimetres. Its walls were much thickened so that it stood out as a stout rigid tube which abruptly was continuous with normal collapsed intestine. The lumen of the affected intestine was filled with a soft, yellowish-white, pasty, granular material. The mucosa was very pale and greyish white and showed a few minute hæmorrhages.

malaria occurred in the room. The dates suggest that he was the source of infection of the other soldier. But the men did not appear to have any particular communication with each other. Major Copeland and Major Smith suggest that the disease was conveyed by a flea or a bug. They also think that the case helps to explain the cause of some failures to stamp out malaria by destroying mosquitoes. This case would not have been diagnosed if the malarial parasite had not been found in the blood. It is therefore quite possible that other cases in which malaria was contracted in this country after it ceased to be indigenous may have been overlooked, as it is only in recent years that examination of the blood for the parasite has become general. Previously the fact that a patient had never been out of England would, as in the case now reported, have been thought sufficient to exclude malaria.

PATENT MEDICINE TRAFFIC.

THE figures which were recently published in THE LANCET showing the amount of duty paid on patent medicines in one year afford convincing proof of the magnitude of the business. It is instructive to calculate the face value of the medicines as represented by the value of stamps sold. The figures are as follows:—

Number of packages.	Full value per package.	Total face value.
31,322,832	1s. 1½d	£1,761,909
7,232,432	2s. 9d.	631,963
1,154,092	4s. 6d.	259,670
134,357	11s.	73,896
14,808	22s.	16,288
12,625	33s.	20,831
Total ... 39 851,146	—	Total ... £2,764,557

The sale of patent medicines for the year under consideration averaged, therefore, more than one package for each inhabitant of this country, with a face value of over £2,750,000 sterling. *This nefarious traffic will go on increasing so long as the majority of newspaper proprietors are untrammelled by legal restrictions and unfettered by principles. It is the unscrupulous newspaper proprietor who* acts as the middleman, enabling the quack by misrepresentation and often by unmitigated fraud to take advantage of the ignorance and prejudice of the public.

ROTTEN EGGS AND THEIR USES.

AT the Thames police court on Sept. 19th summonses were heard against three separate defendants, bearing names suggestive of their Russian origin, all of whom were found guilty of similar offences and were fined respectively £8, £12, and £3, with costs in addition. They were bakers and the information against them was stated to have been given by rival traders. These were certainly justified in supplying it, for the three defendants in order to glaze their bread were in the habit of buying eggs which were the cheapest that they could obtain and unfit for human food. One of them was found to have upon his premises no less than three and a half gallons of liquid filth standing ready for use, and as this must be a large amount to be consumed in the manner indicated in one day it seems probable that some of it was destined to be kept for future occasions. It is a matter of frequent observation that people, educated and uneducated, associate a certain appearance in their food with good quality, and stipulate for the former while unable to detect the absence of the latter. Much of the adulteration of milk and of bread is due to an idea that milk ought to have a yellow tinge and that the whiter bread is the better it is also. The glazing on some pastry and on many kinds of fancy bread affords no evidence of richness or of any skill on the part of the maker but apparently, like the sugary glazing on some varieties of buns, it attracts. There is a conventional idea that the surface of rolls or pastry or buns should look brown and shiny and eggs in the case of an unsweetened article supply the varnish required. This may be perfectly harmless, but there are always bad eggs in the market to be bought at a very low rate compared with fresh ones, and the temptation to the needy and unscrupulous is obvious. It seems a pity that housekeepers should stipulate for appearances which in no circumstances can be of any value but which may lead to their buying food containing nasty and unwholesome ingredients.

DISINFECTION BY FORMALDEHYDE.

A VALUABLE contribution to the subject of disinfection by formaldehyde forms the substance of a paper by Mr. Daniel Base, of the Division of Pharmacology, Hygienic Laboratory, United States Public Health and Marine Hospital Service, which is published in the *Journal of the American Chemical Society* for August. The investigation was undertaken in order to determine the amount of formaldehyde gas given off into a room, specially designed for the purpose, from a definite volume of formalin by five well-known methods and to fix the relative values of these methods as to the yield of formaldehyde gas. The methods compared were: 1. The permanganate-formalin method, by which formalin is poured upon crystals of potassium permanganate; the reaction is completed in about five minutes. 2. The autoclave method whereby an autoclave is first charged with a definite mixture of formalin, glycerine, calcium chloride and water; the pressure is then raised to between 50 and 60 pounds, the cock is opened, and the ejection continued until the pressure falls to about 20 pounds; the pressure is then again raised and the process repeated so long as vapour continues to escape from the nozzle of the autoclave. 3. The sheet-spraying method, which simply consists in hanging up in a room two large sheets at an angle of about 45°, damping them and spraying them uniformly with a given quantity of formalin. 4. The Kühn lamp method, based on the generation of formaldehyde by the partial oxidation of methyl alcohol. 5. The Trenner-Lee retort method, by which formalin is simply heated to the boiling point in a retort in such a manner that the issuing formaldehyde gas and water vapour are passed into the room. The results obtained must be interpreted as representing the quantities of formaldehyde gas that may be expected to be present in a fairly air-tight room on a fairly still day, and after a certain interval of time which varies with the method used. According to the volume of formaldehyde yielded Mr. Base arranges the methods in the following order: (1) the Trenner-Lee retort method which gives the best yield; (2) the autoclave method; (3) the permanganate-formalin method in the proportion of 300 grammes of the salt to 600 cubic centimetres of formalin; (4) the sheet-spraying method; (5) a modification of (3), consisting in the addition of 300 cubic centimetres of water to 375 grammes of potassium permanganate and 600 cubic centimetres of formalin; and (6) the Kühn lamp method. For simplicity and expedition Mr. Base regards the permanganate-formalin method as preferable to all the others. The yield of formaldehyde gas can easily be increased by using larger quantities of materials. Although the sheet-spraying method does not give at any time so high a percentage of the gas it has the advantage that a uniform amount of gas is kept up for a long time. On the other hand, the modified

constantly diminis

six hours is less

method. By the autoclave method there is a loss of formaldehyde in the autoclave by polymerisation or decomposition. The Trenner-Lee retort method, although yielding appreciably more gas than the autoclave, requires more than twice the time to exhaust the apparatus. With the Kühn lamp the yield of formaldehyde is low; but this method possesses the merit of producing more moisture in the air of the room than the other methods described. This point is of importance, since it has been stated by H. von Brunn[1] and others that it is preferable nearly to saturate the air of the room with moisture in order to favour the condensation of formaldehyde on the various objects in the room. Mr. Base suggests that a greater degree of humidity in the air can readily be obtained with the permanganate-formalin method by using an ordinary tin or copper still. Finally Mr. Base quotes the conclusions of a recent experimenter[2] as to the practical requirements for an effective formaldehyde disinfection: (1) five grammes of formaldehyde (absolute) should be present in each cubic metre of space (0·1416 gramme per cubic foot), and should be allowed to act for seven hours; (2) the temperature of the room should not fall below 50° F., the best temperature being from 68° to 77° F.; and (3) the strength of the formalin should be ascertained.

"SAVOURY DUCK."

At the recent conference of sanitary inspectors at Blackpool Mr. James McPhail, M.R.C.V.S., chief food inspector at Hull, read a paper in which he dwelt at length upon facts which had come under his notice bearing upon the desirability of universal public slaughter-houses. The point which he emphasised was that in the interest of the public health it is necessary not merely that there should be inspection but that every carcass slaughtered should be examined at a stage when the examination can be made complete and effective. When a number of private slaughter-houses are used daily this is impossible without a very large staff of inspectors, and when the inspection is not made immediately the most important part, the offal, can be removed from the carcass and dissociated from it, diseased portions can be excised, and articles of food destined to be bought by the humbler and less exacting members of the community can be placed upon the market, although in an unwholesome condition. The *Manchester Courier* thus summarises Mr. McPhail's account of the tricks of the butcher who caters for the poor:—"If a liver had an abscess in it the general way was to cut it out and use the remainder. Immature tape-worm cysts were called blebs. These were burst, but the heads, which developed into tape-worms, were allowed to remain. Livers loaded with hundreds of parasites, called flukes, were used, and sheep's lungs were the principal component part of that delicacy 'faggot,' or 'savoury duck,' or 'Yorkshire duck,' and those lungs, without exception, contain thousands of microscopic worms and their eggs. The working man who had not too much money to spend in his eating-house ordered his 'duck and potatoes.'" Allowing for deviations from the actual phraseology used by the speaker as may be due to the exigencies of an abbreviated report in a lay newspaper, we have here a forcible picture of the conditions under which the public are permitted, or rather are compelled, to purchase their food in spite of the maintenance of an expensive system of food inspection. The results, however, of their consumption of such articles of diet as those indicated are neither so immediate nor so readily traced to their source as to cause any urgent demand for reform on the part of those most affected. There are also the vested interests of the owners of the existing slaughter-houses to be considered whenever the reform takes place. Whatever may be the arguments for or against what is known as "municipal trading" we would suggest that it is at least as desirable in the public interest that, so far as it is possible, local authorities should own all the slaughter-houses as that they should embark upon schemes for tramways and electric lighting.

ANCIENT INDIAN MEDICINE.

Dr. Rudolf Hoernle has published in the *Journal of the Royal Asiatic Society* some Studies in Ancient Indian Medicine, treating of all the known commentaries upon Susruta's great text-book on general medicine entitled "Ayurveda Samhita." At present only one of the commentaries on it—that by Dallana, written about the eleventh century—is complete. Dr. Hoernle quotes previous writers who are concerned with Dallana's work. Susruta's text-book was printed in 1889, and Dallana's treatise upon it in 1891, at Calcutta. The latter gives the names of fifteen of the books upon Ayurveda Samhita which he had consulted but Dr. Hoernle traces extracts from other authors of whose works copies still exist and incidentally throws great light upon the history of Indian medicine. One of the earliest of these writers of any importance he shows to have been Jaljata, who wrote perhaps before the seventh century and of whose work we have no copy, but doubtless many extracts from it are to be found in the voluminous scholia contained in the later Indian medical writers treating of Susruta. Next in value to Jaljata was Gayadasa who commented upon the whole of Susruta's great book. Some of his work is preserved. One portion, relating to his views upon Susruta's work upon pathology and anatomy, is in a newly-found manuscript described by Professor Cordier and also in another at Cambridge. Dr. Hoernle has examined and now treats of this codex which numbers 68 leaves. It is interesting because it proves that Gayadasa had before him a different text of Susruta from the version that Dallana knew. Dr. Hoernle's essay treats of the dates of the various writers and will be invaluable to all students of Sanscrit medical literature.

Dr. Leonard P. Mark will deliver the presidential address before the West London Medico-Chirurgical Society at 8.30 on Friday, Oct. 5th. The subject will be Art and Medicine and the address will be illustrated by lantern slides of some pictures and works of art in British picture galleries and museums which are interesting from a medical point of view.

The Registrar of the General Medical Council is directed to state for information that Sir Victor Horsley has written to the President resigning his seat on the Council in order that the inconvenience of a separate election next year may be avoided.

A telegram from the Governor of the Mauritius, received at the Colonial Office on Sept. 21st, states that for the week ending Sept. 20th there were 18 cases of plague and 7 deaths from the disease.

The forty-seventh annual meeting of the New Sydenham Society will be held at 4.30 p.m. on Monday, Oct. 1st, at Mr. Jonathan Hutchinson's house, 15, Cavendish-square, London, W.

The opening address of the winter session will be delivered before the West London Post-graduate College on Wednesday, Oct. 10th, at 4.30 p.m., by Mr. C. B.

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[1] Formaldehyddesinfektion durch Verdampfung verdünnten Formalins," Zeitschrift für Hygiene und Infectionskrankheiten, 33, 221 [illegible]

[2] G. Wegner: Zur Kritik der Formaldehyddesinfektion, Archiv für Hygiene, 39, 38 [illegible]

malaria occurred in the room. The dates suggest that he was the source of infection of the other soldier. But the men did not appear to have any particular communication with each other. Major Copeland and Major Smith suggest that the disease was conveyed by a flea or a bug. They also think that the case helps to explain the cause of some failures to stamp out malaria by destroying mosquitoes. This case would not have been diagnosed if the malarial parasite had not been found in the blood. It is therefore quite possible that other cases in which malaria was contracted in this country after it ceased to be indigenous may have been overlooked, as it is only in recent years that examination of the blood for the parasite has become general. Previously the fact that a patient had never been out of England would, as in the case now reported, have been thought sufficient to exclude malaria.

PATENT MEDICINE TRAFFIC.

The figures which were recently published in The Lancet showing the amount of duty paid on patent medicines in one year afford convincing proof of the magnitude of the business. It is instructive to calculate the face value of the medicines as represented by the value of stamps sold. The figures are as follows:—

Number of packages.	Full value per package.	Total face value.
31.322,832	1s. 1½d	£1,761,909
7,222,432	2s. 9d.	631,963
1,154,092	4s. 6d.	259,670
134,357	11s.	73,895
14,803	22s.	16,288
12,625	33s.	20,831
Total ... 39,851,146	—	Total ... £2,764,557

The sale of patent medicines for the year under consideration averaged, therefore, more than one package for each inhabitant of this country, with a face value of over £2,750,000 sterling. This nefarious traffic will go on increasing so long as the majority of newspaper proprietors are untrammelled by legal restrictions and unfettered by principles. It is the unscrupulous newspaper proprietor who acts as the middleman, enabling the quack by misrepresentation and often by unmitigated fraud to take advantage of the ignorance and prejudice of the public.

ROTTEN EGGS AND THEIR USES.

At the Thames police court on Sept. 19th summonses were heard against three separate defendants, bearing names suggestive of their Russian origin, all of whom were found guilty of similar offences and were fined respectively £8, £12, and £3, with costs in addition. They were bakers and the information against them was stated to have been given by rival traders. These were certainly justified in supplying it, for the three defendants in order to glaze their bread were in the habit of buying eggs which were the cheapest that they could obtain and unfit for human food. One of them was found to have upon his premises no less than three and a half gallons of liquid filth standing ready for use, and as this must be a large amount to be consumed in the manner indicated in one day it seems probable that some of it was destined to be kept for future occasions. It is a matter of frequent observation that people, educated and uneducated, associate a certain appearance in their food with good quality, and stipulate for the former while unable to detect the absence of the latter. Much of the adulteration of milk and of bread is due to an idea that milk ought to have a yellow tinge and that the whiter bread is the better it is also. The glazing on some pastry and on many kinds of fancy bread affords no evidence of richness or of any skill on the part of the maker but apparently, like the sugary glazing on some varieties of buns, it attracts. There is a conventional idea that the surface of rolls or pastry or buns should look brown and shiny and eggs in the case of an unsweetened article supply the varnish required. This may be perfect harmless, but there are always bad eggs in the market to b bought at a very low rate compared with fresh ones, and th temptation to the needy and unscrupulous is obvious. seems a pity that housekeepers should stipulate for appea ances which in no circumstances can be of any value b which may lead to their buying food containing nasty an unwholesome ingredients.

DISINFECTION BY FORMALDEHYDE.

A valuable contribution to the subject of disinfecti by formaldehyde forms the substance of a paper by M Daniel Base, of the Division of Pharmacology, Hygien Laboratory, United States Public Health and Marine Ho pital Service, which is published in the *Journal of t American Chemical Society* for August. The investig tion was undertaken in order to determine the amou of formaldehyde gas given off into a room, speciall designed for the purpose, from a definite volume formalin by five well-known methods and to fix th relative values of these methods as to the yield of forma dehyde gas. The methods compared were: 1. The perma ganate-formalin method, by which formalin is poured upo crystals of potassium permanganate; the reaction is com pleted in about five minutes. 2. The autoclave metho whereby an autoclave is first charged with a definite mixtu of formalin, glycerine, calcium chloride and water; th pressure is then raised to between 50 and 60 pounds, the coc is opened, and the ejection continued until the pressur falls to about 20 pounds; the pressure is then again raise and the process repeated so long as vapour continues t escape from the nozzle of the autoclave. 3. The sheet spraying method, which simply consists in hanging up in room two large sheets at an angle of about 45°, dampin them and spraying them uniformly with a given quantity o formalin. 4. The Kühn lamp method, based on the genera tion of formaldehyde by the partial oxidation of methy alcohol. 5. The Trenner-Lee retort method, by whic formalin is simply heated to the boiling point in a retort i such a manner that the issuing formaldehyde gas and wate vapour are passed into the room. The results obtained mus be interpreted as representing the quantities of formaldehyd gas that may be expected to be present in a fairly air-tigh room on a fairly still day, and after a certain interval o time which varies with the method used. According to the volume of formaldehyde yielded Mr. Base arranges the methods in the following order: (1) the Trenner-Lee retort method which gives the best yield; (2) the autoclave method; (3) the permanganate-formalin method in the proportion of 300 grammes of the salt to 600 cubic centimetres of formalin; (4) the sheet-spraying method; (5) a modification of (3), consisting in the addition of 300 cubic centimetres of water to 375 grammes of potassium permanganate and 600 cubic centimetres of formalin; and (6) the Kühn lamp method. For simplicity and expedition Mr. Base regards the permanganate-formalin method as preferable to all the others. The yield of formaldehyde gas can easily be increased by using larger quantities of materials. Although the sheet-spraying method does not give at any time so high a percentage of the gas it has the advantage that a uniform amount of gas is kept up for a long time. On the other hand, the modified permanganate-formalin method yields a constantly diminishing quantity of gas, which after five or six hours is less than is obtained by the sheet-spraying

Keetley, F.R.C.S. Eng., senior surgeon to the West London Hospital, at the hospital. Tea and coffee will be provided at 4 P.M. and after the address.

THE subject of the address of the incoming President (Mr. C. A. Ballance) before the Medical Society of London on Oct. 8th, at 8 P.M., will be "Then and Now in Surgery."

Mr. Obadiah Johnson, M.D. Edin., has been appointed an unofficial member of the Legislative Council of the Colony of Southern Nigeria.

Dr. James Macpherson Lawrie has been appointed Deputy-Lieutenant of the county of Dorset.

MEDICINE AND THE LAW.

Imprisonment for Debt.

PROBABLY a large number of Britons living in comfortable circumstances and not troubling themselves about the affairs of their humbler neighbours would tell an inquiring foreigner that imprisonment for debt was done away with long ago in these islands. They might, perhaps, add observations as to the physical and moral degradation which accompanied it, and illustrate them by reference to the fiction of Dickens, Thackeray, and other writers of the last century. As a matter of fact, however, or rather as a matter of law, a county court judge is given power to imprison debtors who do not obey his order to pay their creditors "when it is proved to the satisfaction of the court that the person making default either has or has had since the date of the order or judgment the means to pay the sum in respect of which he has made default, and has refused or neglected, or refuses or neglects, to pay the same." This has been the law since 1869. In 1875 4063 "judgment debtors" went to prison for various terms, in 1895 8190, and in 1905 11,405, and it must be remembered that these were consigned, not as debtors to a prison set apart for them, but to the ordinary gaol to which the pickpocket and the vagrant go. The increasing figures prove that a large number of persons are not afraid to incur debts which they will not be able to pay, and that the possibility of going to prison does not act as a deterrent to such as these. It is also notorious that the process of the court intended to be applied to those who wilfully disobey—those, in short, who can pay but will not—is abused; it becomes the means by which the "screw" is put upon persons who under its action can obtain money by borrowing it or by appealing to the sympathy of relatives better off than themselves. The system undoubtedly leads to lying and perjury in the county courts; it tends to demoralise those who go to prison and their families, whom they probably leave to go to the workhouse; it is costly to the public; and it benefits principally those persons who can use it as a method of terrorising their debtors. There are two sides to the question and the small trader requires protection from dishonest customers, but at the same time many contend with reason that the abolition of all imprisonment for debt, or its retention only for those cases where the debtor clearly and beyond question is defying the court, would have a beneficial effect on the community. It would cause cash payments to be insisted upon, or the exercise of self-denial on the part of the would-be purchaser, who in existing circumstances is tempted to increase his difficulties by purchasing upon credit. The committal to prison in a year of 11,000 persons who have committed no crime is a grave matter for medical men to contemplate, and a House of Commons in which the working man is largely represented should find time to give serious attention to the recently issued county court returns. Prison is prison whatever the reason may be which causes the detention; and in the long run many prisoners connotes many miserable homes, much privation, and much disease. The sequence is a fairly direct one.

THE GUILD OF ST. LUKE.—The customary annual service of the Guild of St. Luke will be held in St. Paul's Cathedral on Wednesday, Oct. 17th, at 7.30 P.M.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Glasgow.—The population of this city, 809,936 is still the largest in the United Kingdom with the exception of that of London, and Dr. A. K. Chalmer makes good use of the material afforded him. Durin 1905 he endeavoured to investigate the food habits of 55 families (over 3000 persons) in whose households case of infectious disease had occurred and, as was to hav been anticipated, the results emphasised the enormou importance of educating the poorer classes as to the foo values of the commoner articles of diet. Dr. Chalmer thinks that the establishment of food canteens in the poore districts where substantial fare could be purchased at reasonable cost would prove of great and immediate benefi and he thinks that the abuse of such establishment could be prevented by visiting the children at thei homes. He points out that in the poorer parts o Glasgow there are many motherless families where th children's food is a succession of tea meals, with littl variation, and with no trustworthy help available. In hi inquiry he classified the diets into "good," "medium," and "bad," and it is interesting to observe the relations o the preponderating diet to the size of the dwelling. In the one-apartment dwellings the feeding was 27 per cent. good, 40 per cent. medium, and 33 per cent. bad, as against, in the two-apartment dwellings, 46 per cent. good, 44 per cent. medium, and 10 per cent. bad, while as regards the three-apartment dwellings the feeding was 71 per cent. good, 24 per cent. medium, and 5 per cent. bad. The canteen system is being at the present time largely patronised by the French and there is no doubt much to be said for it. But it is to be hoped that in addition the education authorities will see that the children in the schools are taught by a simple kindergarten system how to purchase the most nutritious meal for a given sum. In dealing with the statistics of Glasgow Dr. Chalmers points out that the estimation of the marriage-rate upon the population as a whole is likely to lead to very erroneous conclusions, and that the better method of stating the rate is in relation to the unmarried females and widows aged 15 years and upwards. When the rate is estimated on the whole population basis the decrease in Glasgow during the last 30 years was only 4 per cent., whereas a decrease of 16 per cent. is demonstrated by the other method. An instructive inquiry as regards pulmonary tuberculosis was undertaken in Glasgow during 1905 but we have no space to summarise it here. We may, however, quote some very sensible remarks made by Dr. Chalmers as regards the classification of cases. He says: "For administrative purposes some classification is necessary, but this must obviously have reference rather to the object in view than to the pathological condition present. It cannot be too frequently reiterated that the prevention of phthisis will only be accomplished by removal of the conditions which foster it. Phthisis prevails in our midst because of the low standard of housing we are still perforce compelled to accept. No provision of sanatoria for early cases, or of homes of rest for the very advanced, will in the least degree abate the necessity for keeping this steadfastly in view. Forms of individual relief are useful and valuable adjuncts. They may provide for the segregation of the actively infective or place the incipient case in the way of improvement, but the reduction of phthisis in the past has proceeded without organised help of either kind. With the modern views regarding the part played by sputum, and especially by droplet-infection, in spreading the disease, however, some supervision of the individual may reasonably be added; and the form which this supervision should take suggests the administrative classification necessary." There were during 1905 one death from anthrax and one from glanders, both in the human subject. In the case of anthrax the evidence pointed [illegible] unknown origin as the possible source of

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to 153 ohms; the resistance of the urine (not coloured blue) segregated from the left diseased kidney amounted to 93·5 ohms, or more than double the average normal resistance. The resistance of the urine (coloured blue) segregated from the right healthy kidney was 62·9. The hæmo-renal salt index of the diseased kidney was $\frac{153}{93{\cdot}5} = 1{\cdot}6$. The hæmo-renal salt index of the healthy kidney was $\frac{153}{62{\cdot}9} = 2{\cdot}4$. No allowance has, however, been made for the different rates of secretion of the two kidneys; had this been taken into account there might have been a much greater difference. The result, however, shows that the hæmo-renal index of the diseased kidney was below the normal—viz., 1·6 instead of 2—while the index of the healthy kidney was quite up to or even above the normal—namely, 2·4 instead of 2, because it was taking on some of the work of its fellow. No doubt more accurate information as to the salt concentration of the blood could be obtained by separating the serum, but this would be difficult when dealing with the very small quantity of blood and of urine—viz., five cubic millimetres—which is all I require to draw from a patient in order to measure the ratio I have termed the hæmo-renal salt index.

I am, Sirs, yours faithfully,
Edinburgh, Sept. 22nd, 1906. DAWSON F. D. TURNER.

THE PRESENT METHODS OF UTERINE DILATATION.

To the Editors of THE LANCET.

SIRS,—The ordinary student of our recent literature on this subject will at once discard the use of tents in favour of forcible methods. Let us see if this should be so. First, tents are not packed with even ordinary antiseptic precautions, and before use may have been handled by salesmen and would-be purchasers many times. In our text-books their dangers are referred to but no methods suggested of avoiding them. The method I use is to keep the tents in an absolute alcoholic solution of biniodide of mercury (1 in 200). This does not cause them to swell and renders them as safe to leave in the cervical canal as iodoform gauze. In the case of the tent being liable to leave fragments behind, as in sponge tents, the tent should first be wrapped or encased in iodoform gauze by which means none can be left and the gauze being loose laterally allows the tent to fully expand. Should there be a possibly difficult removal owing to constriction at the inner *os* several fine laminaria tents are preferable to one large one. It will then be found much easier to remove them, especially if they are left in 24 hours or more. Instead of using expensive tent introducers the vaginal forceps used by every surgeon will be found most serviceable, for after half an inch or more of the tent has been introduced into the cervix the tent can be released and thrust on by pressure at the end. By this means it will find it own way in a tortuous canal much better than when held rigidly in an ordinary introducer. As a rule tents can be introduced without chloroform or other anæsthetic and the saving of time at the subsequent operation is invaluable. Having watched prominent surgeons trying forcibly to dilate in a short time a rigid *os*, using vulsella to keep down the os whilst Hegars were thrust into it often causing the vulsella to tear their way out, perhaps with a bit of cervix still adherent, I have felt very much in favour of the old tents but used in accordance with up-to-date antiseptics. The vagina can be tightly packed with iodoform gauze after introduction should there be danger of the tents slipping out, but if not I prefer not to pack the vagina at all. I have just removed by the cervix an intrauterine fibroid polypus some three inches in diameter (in pieces), dilatation being procured by tents and gauze previously to operation and the os is now intact and the patient in good health. I could not have had this result by any other method I have seen and the patient was quite run down previously by continuous hæmorrhage, rendering an abdominal operation not desirable to the patient or operator. The best antiseptic solution for keeping instruments in both previously to, and during, operation that I have found is common washing soda and boiled water. The instruments can remain in it indefinitely without injury and are ready for instant use. This does not apply to aluminium, which is injured by soda. I consider that every army corps should have its surgical instruments kept permanently in metal cases full of soda solution. No boiling previously to operation would be necessary.

I am, Sirs, yours faithfully,
THOMAS HODGSON, M.B., Ch.B.
Fitzroy, Victoria, July 21st, 1906.

TYPHOID FEVER AND CANCER.

To the Editors of THE LANCET.

SIRS,—Has there been any case of death from cancer within seven years of an attack of typhoid fever? Is not cancer so extremely rare among typhoid fever cases of recent date, too rare for the age incidence to be a sufficient reason, as to call for an inquiry into something which could *possibly* be a point of connexion between the two diseases? The discovery of any such point of connexion might throw some light on the cause of cancer. Our position as a profession will be indeed singular if we are compelled to admit that cancer abstains from attacking those who have recently suffered from typhoid fever and we are not able to give any reason for it. I am, Sirs, yours faithfully.

WILLIAM ROPER, M.A. Oxon., L.R.C P., L.R.C.S. Edin.
Bridport, Sept. 13th, 1906.

THE PSYCHOLOGY OF THE SELFISH MOTORIST.

To the Editors of THE LANCET.

SIRS,—Your annotation on the above subject in THE LANCET of Sept. 8th misses the true cause of the troubles you suggest as being possibly due to the advent of the automobile—I refer to the dust. Now the dust was on the roads long before the automobile and was stirred up by strong winds and horse traffic, and through the latter became excrement-bearing dust. The roads of England are in much the same condition as they were one hundred years ago and the repairs to the roads—viz , rolling mud into loose stones "to make it bind"—cause in dry weather the blinding dust which is raised by winds and all traffic. Let the new vehicle be taxed judiciously by all means and the proceeds of the tax applied to a modern and dustless method of road-making, then, with the disappearance of horse traffic and the general adoption of the automobile we shall hear no more of "fæcal dust" and dust-borne infections. It must be borne in mind that the automobile is a boon to the medical man both in town and country and has been generally adopted by the profession both in England and abroad, and I think that all our efforts should be directed to the improvement in road-making. The selfish automobilist is with us and always will be, and so is the selfish horse driver, and I always rejoice to see the former punished, but, I regret to say, the latter usually comes off scot free.

I am, Sirs, yours faithfully,
Plymouth, Sept. 18th, 1906. GEORGE F. ALDOUS.

GOATS' MILK FOR INFANTS.

To the Editors of THE LANCET.

SIRS,—With reference to your annotation on the above subject in THE LANCET of August 25th the following quotations from "Climate and Health in Hot Countries," by Lieutenant-Colonel G. M. J. Giles, I.M.S., may be of interest:—

> Goats are extremely hardy and, being naturally clean feeders, require far less attention than cows, while the flavour of their milk in tea is preferred by many to that of cows' milk. They stand marching well, too, and are therefore better suited for use in camp, and as their favourite food is the leaves of bushes they may be trusted to find their living to a great extent as they trot along on their way from camp to camp. Usually their milk agrees excellently with infants, but there can be little doubt that asses' milk is superior for this purpose. (P. 50.)
>
> Goats' milk requires somewhat less dilution than that of the cow and may agree in cases where cows' milk fails. (P. 75.)
>
> Asses' milk is probably the best substitute for an infant's natural food, and failing this goats' milk is to be preferred to that from the cow. (P. 152.)

Such strong expressions of opinion from an officer with almost unrivalled tropical experience should go far to settle the somewhat vexed question of the suitability or otherwise of goats' milk as a food for infants. Since writing my communication on the subject one officer informs me that his child was brought up entirely on goats' milk in the island of Jamaica, a second writer that goats' milk is largely used for in Glasgow, 12 in Edinburgh, eight in Paisley, six in Leith, four in Dundee, and three in Greenock. Of the 11 fatal cases of "fever" seven occurred in Glasgow, two in Dundee, and one each in Edinburgh and Leith; four of the seven in Glasgow, one of the two in Dundee, and the case in Edinburgh were certified as cerebro-spinal meningitis. Of the ten deaths from whooping-cough, seven were returned in Glasgow and two in Aberdeen; and the eight fatal cases of diphtheria included three in Glasgow, and two both in Edinburgh and Aberdeen. Measles also caused three deaths in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 50 and 58 in the two preceding weeks, further rose to 66 in the week under notice, and exceeded by ten the number returned in the corresponding week of last year. The causes of 19, or 3·4 per cent., of the deaths registered during the week were not certified; the mean proportion of uncertified deaths in the 76 English towns during the same week did not exceed 0·8 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had steadily increased in the seven preceding weeks from 16·8 to 29·4 per 1000, declined to 26·8 during the week ending Sept. 22nd. During the first 12 weeks of the current quarter the death-rate in the city averaged 21·2 per 1000, the mean rate during the same period being only 15·4 in London and 13·0 in Edinburgh. The 195 deaths of Dublin residents during the week under notice showed a decline of 19 from the high number in the previous week, and included 39 which were referred to the principal epidemic diseases, against 52 and 43 in the two preceding weeks; these 39 deaths were equal to an annual rate of 5·4 per 1000, the death-rate during the week from the same diseases being 4·5 in London and only 2·6 in Edinburgh. Of these 39 deaths no fewer than 34 were referred to diarrhœa (against 49 and 39 in the two preceding weeks), two to "fever," one each to measles, scarlet fever, and whooping-cough, and not one either to small-pox or diphtheria. The deaths both of infants and of elderly persons showed a decline from the high numbers in the previous week. Seven inquest cases and five deaths from violence were registered; and 52, or 26·7 per cent., of the deaths occurred in public institutions. The causes of nine, or 4·6 per cent., of the deaths registered during the week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment is notified:—Staff Surgeon A. R. Bankart, lent for three months' study at London Hospital.

ROYAL ARMY MEDICAL CORPS.

Major G. L. Foster, of the Canadian Army Medical Corps, has been attached to the Depôt at Aldershot for a course of instruction. Captain B. Watts is directed to proceed to Fermoy for charge of the Military Families Hospital, vice Captain H. G. Martin. The following officers, now attached to the Aldershot Army Corps, have been selected for service in India:—Lieutenant-Colonel T. J. R. Lucas, C.B., Lieutenant-Colonel H. P. G. Elkington, Lieutenant J. S. Dunne, and Major H. S. Peeke.

ARMY MEDICAL RESERVE OF OFFICERS.

The undermentioned Surgeon-Lieutenants to be Surgeon-Captain:—Robert A. Draper (dated Sept. 14th, 1906) and Reginald O. Gayer (dated Sept. 17th, 1906).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st West Riding of Yorkshire: John Nightingale (late Captain) to be Surgeon-Captain (dated Jan. 20th, 1906).

Rifle: 2nd Volunteer Battalion the King's Liverpool Regiment: William Henry Broad to be Surgeon-Lieutenant (dated Sept. 22nd, 1906). 3rd Volunteer Battalion the Lancashire Fusiliers: Wilfred Moritz Steinthal, late Captain, Northern Command, Manchester Companies, Royal Army Medical Corps (Volunteers), to be Surgeon-Captain (dated Sept. 22nd, 1906).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Lancaster and Border Bearer Company: Captain W. B. Cockill to be Major (dated Sept. 22nd, 1906).

DEATHS IN THE SERVICES.

Major Thomas Birt, R.A.M.C., on Sept. 19th at Reading. He entered the service in 1887 and served with the Chitral Relief Force under Sir Robert Low in 1895 (medal with clasp). He was promoted to major in 1899.

Surgeon Herbert Bartlett Simpson, R.N., recently at Ceylon from enteric fever. The deceased officer, who was only in his twenty-ninth year, had served for some time at the Royal Naval Hospital, Stonehouse (Plymouth).

FRESH MEAT IN THE NAVY.

The determination has been arrived at by the Admiralty to slaughter pigs at the Royal William Victualling Yard, Stonehouse (Plymouth), for the supply of fresh pork to ships in the port. Pens and slaughter-houses and all the appurtenances are to be erected in the yard for this purpose. The pigs will be supplied by contract but the slaughtering will be done under official supervision. The Admiralty has also called for a report on the best means of supplying victuals to ships within reasonable distance of the port of Plymouth.

EXPENDITURE OF ARMY ALLOWANCES IN INDIA.

Lord Kitchener has issued an order dealing with military expenditure, in which he points out that heavy waste of the public funds occurs through officers of all ranks spending budget allotments at a forced pace towards the end of each financial year in order to prevent the allotments from lapsing. The Commander-in-Chief forbids this hurried squandering of unspent balances.

Correspondence.

"Audi alteram partem."

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

To the Editors of THE LANCET.

SIRS,—I am grateful to Mr. T. M. Wilson for calling my attention in THE LANCET of Sept. 8th, p. 682, to the fact that the electrical resistance of the blood does not depend solely upon the salts present, but also upon the proportion of the total volume of the blood which is occupied by corpuscles. I was, of course, aware from experiments made by me on artificial urines prior to 1892[1] that the presence of non-electrolytes such as sugar and albumin would slightly increase the resistance, but this effect can for practical clinical purposes be disregarded in the presence of the dominating influence of the salts. I must also express my thanks to Mr. Wilson for drawing my attention to his conductivity measurements and freezing-point observations on blood and serum in pernicious anæmia and other diseases. He confirms, I am pleased to see, the observation I made a number of years ago[2] as to the increased conductivity of the blood in pernicious anæmia, but he disagrees with me as to the cause. Whether this increased conductivity be due to the diminution in the corpuscles, or to the increase in the salts, or to both, it is of importance in throwing light on the pathology of the disease.

Much more, however, can be learned as to the renal efficiency by ascertaining the ratio which I have termed "the hæmo-renal salt index"—namely, by comparing the electrical resistance of the blood of a patient to the electrical resistance of his urine, taken at one and the same time. Thus, in pernicious anæmia the index is only a fraction of what it is in health, due to the diminished resistance of the blood and the increased resistance of the urine. Dr. F. G. Hopkins[3] found a marked diminution in the salts of the urine in five cases of pernicious anæmia. But it will be chiefly in surgical affections of the kidney that the method will be in combination with cryoscopy of use in ascertaining the renal capacity. I append the notes of a case under the care of Dr. H. Alexis Thomson of tuberculous kidney; the secretions were examined for me by Dr. A. C. T. Woodward. The resistance of the blood was very high and amounted

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[1] Proceedings of the Royal Society of Edinburgh, Dec. 21st, 1891.

[2] Manual of Practical Medical Electricity, fourth edition, chapter on Electrical Diagnosis; also Nature, July 13th, 1899.

[3] Guy's Hospital Reports, 1891-1892.

THE GIBRALTAR WATER-SUPPLY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

AFTER the Fourteenth International Congress of Medicine held at Madrid in 1903 I managed to visit both Gibraltar and Tangier. When a few months ago the Fifteenth International Congress of Medicine met at Lisbon I again profited by the comparative proximity to contemplate once more what the ancients described as the pillars of Hercules The interest that both these places excite is unfailing though of so different a nature. For Gibraltar the British patriot feels the full glow of pride, though the last time I was there I met a German officer who was making a pilgrimage to the great fortress to see the place where, as he put it, Hanoverian regiments had immortalised themselves in defending this possession of their Hanoverian king. For my part, I view with no less pride the victories won at Gibraltar by the science of hygiene in the saving of human life. During the ten years 1881–90 the average annual death-rate was 23·0 per 1000 of the population. During the next ten years the annual average was 20·65 per 1000. From 1881–90 the average annual "zymotic" death-rate was 4·93 per 1000 and from 1891 to 1900 it had fallen to 2·79 per 1000. In former days Gibraltar was subject to terrible epidemics and in 1804 no less than 5733 persons died from fever in a few weeks out of a population of about 15,000. On the other hand, in 1885, when the terrible cholera epidemic devastated the surrounding country and in spite of the fact that thousands of Spanish labourers and others came into Gibraltar to work for the day, returning to Spain at sunset, there were only 34 cases and 25 deaths from cholera at Gibraltar.

The census of 1901 showed that the population of Gibraltar then numbered 27,460, including 6475 soldiers But to this must be added a large amount of shipping and a great number of passengers who land, some only for a few hours, others for a few days. This, especially the shipping, increases the greatest difficulty that besets the fortress and town of Gibraltar. Considering that Gibraltar is a precipitous limestone rock jutting out into the sea there can be no natural water-supply. There are wells certainly at the foot of the perpendicular cliff which constitutes the most formidable feature of the North Front. The moment, however, any quantity of fresh water is drawn from these wells it is replaced by the salt water that comes filtering in from the sea which is so near on both sides of this narrow peninsula. Nevertheless, and though this water is brackish, it has very greatly contributed to preserve the health of the town. It is not fit to drink but it has rendered the creation of a system of drainage possible. Triple expansion engines have been placed at the North Front. These pump up some 200 000,000 gallons of this water to an altitude of 250 feet into reservoirs near the old Moorish Castle and to some other minor reservoirs on the Europa road. At the latter point another pump raises a portion of this water to a height of 535 feet. By these means it has been possible to lay mains and to deliver by gravitation water to all the dwellings at Gibraltar. This water is too salt to drink but it provides ample means for flushing house drains and public sewers, for watering and cleansing streets and yards, and for extinguishing fires. It is called the sanitary supply and great has been the service it has rendered to the cause of sanitation.

Till 1868 the inhabitants had no other water to drink than the rain water collected for the most part on the roofs of the houses. Well digging was not successful: if the water was not brackish it was often impure. The rainfall, however, is uncertain and when water is most needed there is no rain. In summer the heat is more oppressive than might be imagined by the mere reading of the thermometer. This is due to the stagnation of the air resulting from the shelter which the high rock affords. Yet in winter the north wind, which fortunately is very rare, brings from the snow-clad mountains biting cold. Though snow is almost unknown, there are hail storms. From 1790 to 1901, during 111 years that a record has been kept, the average annual rainfall has been 33·33 inches. The most rainy months were November with an average of 5·70 inches, and December with 5·57 inches. Then follow January, February, and March. Barely half an inch falls in June, July, and August, while in May and September the rainfall is under two inches. The highest fall in one day was on Dec. 14th, 1796, when it amounted to 9·13 inches. The highest record for rain during an entire year was that of 1855–56, when 77·14 inches fell; the lowest was in 1800–01 when only 15·12 inches of rain were recorded. It will be seen by these figures that it is a hazardous matter to depend upon the rainfall for a water-supply. During 1884, however, in the Southport Ditch, near the Ragged Staff, condensing machinery, which, if I remember correctly, had been used during the Abyssinian campaign, was erected. These condensers could distil 650 000 gallons of salt water per month. The water thus freed from salt and sold for drinking purposes to the inhabitants was of help in keeping the cholera at bay during the great epidemic which occurred in the following year.

Shortly after this first attempt on a large scale to secure a public supply of drinking water efforts were made to collect water on the slope of the rock. In 1898 an area of 14½ acres was especially prepared for this purpose. The fissures and indentations in the rock were filled up and the surface was concreted so as to make a clean, smooth catchment ground. Then great reservoirs were dug deep into the rock and so far within the mountain as to be not only bomb proof but at such a distance from the surface as to assure that the water should remain at the same temperature whatever outside variations may occur Here the water is preserved underground, as in nature, only at a higher level, so that it can be distributed to the habitations below by the force of gravitation. The reservoirs thus built have a capacity of 5 000,000 gallons. These I visited and described after the Madrid Congress of 1903 There are four reservoirs, each holding 1 250,000 gallons, so that while the water is being taken from one it is allowed to settle in the others. When these great works were first undertaken the question was raised as to whether it would be possible to sell the water. To-day the complaint is made that the water sells too readily, that the demand is so great that the inhabitants cannot get what they urgently need.

The result was that a much larger scheme was prepared by Mr. William Wallace Copland, the secretary and engineer of the Sanitary Commissioners. This scheme I fully described three years ago, but to-day the tunnel is completed and I was able to go right through in a little truck on rails which, entering near the Moorish Castle and emerging high above Catalan Bay, seemed to pierce the rock like a needle. A smooth sand-slide that slopes from the rock above Catalan Bay, that is, on the Mediterranean side, has, to the extent of 40 acres, been covered over with corrugated iron and forms a splendid catchment ground for rain water. But a tunnel had to be pierced so as to convey this water over to the Atlantic side of the rock, where Gibraltar is situated. The tunnel is really a wonderful construction. It has been pierced 20 feet above the reservoirs; it is seven feet high and ten feet broad. On one side there is a passage three feet broad with a rail so that trucks can be wheeled through from end to end. The remaining seven feet in the width hold an open channel or culvert where the water passes but over which it could flow in case of storm pressure. About half-way across there is a mysterious cavernous opening which seems to descend into the very centre and down to the bottom of the rock. On one occasion 5 000,000 gallons of water were poured into this opening and disappeared. Doubtless the water reached the sea but no one knows how. The extraordinary feature about the rock is that it contains no fossils whatsoever. Though it consists of the Jurassic limestone formation there are no fossils. If any existed they certainly would have been found during the piercing of the tunnel through the centre of the rock. Beside, a great many of the stones extracted were broken up for roads and a reward was offered to the labourers if they could find a fossil. Nor is there anything to indicate the age of the rock. Geologists are at a loss to explain this absence of fossils. Another curious point is that the monkeys who inhabit the higher portions of the rock conceived a strong dislike to the catchment ground; therefore, they occasionally arm themselves with great stones, climb to a vantage ground as high above the place as possible, and, by hurling these stones upon the corrugated iron, have succeeded in making several holes. As the rain-water runs through these holes and is lost in the sand which the iron sheeting is meant to cover, it is necessary constantly to mend these damaged portions of the catchment grounds. Perhaps the monkeys find that they cannot run across the corrugated iron plates as easily as over the sand. Gibraltar has been attacked by feeding infants at Gibraltar, and the wife of a third gentleman tells me that her eldest son was fed entirely on goats' milk while in India as cows' milk did not agree with him.

Personally I am strongly of Colonel Giles's opinion that the milk of a "clean feeder" is much more desirable than that of an animal which occasionally finds its nutriment in village rubbish heaps. If Indian mothers realised that "when pressed by hunger there is no fouler feeder than a cow, and it is a dismal fact that, in the polity of an Indian village, the cattle rival the pigs in their efficiency as scavengers," they would, when travelling about and unable to keep a cow of their own, prefer the milk of the goat to that of the cow as food for their infants.

I am collecting opinions from my colleagues with tropical experience and making a few experiments and hope to submit a report later, but in the meantime I would esteem it a favour if the readers of this journal would favour us with their views on this very important detail of infant hygiene.

I am, Sirs, yours faithfully,
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Captain, R.A.M.C.
Military Families' Hospital, Devonport, Sept. 21st, 1906.

WHAT IS A SPECIALIST?

To the Editors of THE LANCET.

SIRS,—In the days when Imperial Liberalism was a political factor I remember a discursive speaker being described as one who could talk on everything, "from Rosebery and current topics to raspberry-and currant tart" Some of your correspondents have shown similar discursiveness, and I use this as an excuse for introducing some new facts to the notice of the medical public which may not seem strictly germane to the present discussion. It may be added, however, that when the subject of a correspondence is the search for a definition there can be no certain limits to the matters dealt with.

The word "specialist" is used by some of the public and by most medical men to imply a man who has special knowledge of some very distinct branch of medicine and surgery, and to obtain this knowledge he must possess very distinct opportunities. Thus a man can be called a specialist who has unusual opportunities for observing and treating diseases of the eye or the ear, of the throat or the nose. Apparatus is designed to help him in diagnosis the full utility of which can only be obtained in practised hands, or estimated by practised observation. He must have many patients before he can acquire familiarity with the particular points of his specialty, and, roughly speaking, he can only get his material by being attached to a hospital. This fact has unfortunately led many members of the public to suppose that being attached to a hospital and being a specialist are synonymous terms. A letter in your issue of Sept. 8th, p. 678, from Dr. Francis Hawkins shows that he shares this opinion, and he is probably not alone among consulting medical men. In this view only one class of medical man should attain to the rank of a hospital surgeon or a hospital physician, and it will be the duty of those members of the medical profession who are in a lower sphere to feed this superior class, sending them all cases the treatment of which is not perfunctory, and inviting their aid at all operations which would not fall naturally within the scope of a house surgeon. What I want to bring out is this. Firstly the general practitioner, in the ordinary course of his duties, will not become a specialist—say—in diseases of the ear. He will not see enough aural cases to enable him to group them into divisions and subdivisions for purposes of diagnosis and prognosis; he need not pretend to have familiarity with delicate operative procedures. But, secondly, he will see enough cases of pneumonia, of pathological developments following zymotics, or of complicated labours to give him a special knowledge in such situations, if he spends a special amount of time pondering the natural and other phenomena and brings a special amount of intelligence and investigating method to bear upon the symptoms. Such an expert general practitioner may be just as much possessed of individual and particular knowledge as the physician-anæsthetist or the ophthalmic surgeon to a hospital. Therefore, I can see no reason whatever why he should not assume, when he chooses, the position of specialist or consultant. If the members of the public go straight to him no harm will be done, for he is a practically learned man; on the other hand, his colleagues, especially those junior to him in the general ranks of the profession, might often like to consult one possessing this valuable and hardly earned kind of experience.

The interesting correspondence which has been running in your columns under this heading was started, if I remember rightly, by the question whether a general practitioner, desiring to pass into consultant or specialist ranks, could indicate the same in any way on his door-plate. The question has not been answered, but I do not see why he should not be allowed to do so.

I am, Sirs, yours faithfully,
M.B., B.C.

THE VACANCY ON THE SENATE OF THE UNIVERSITY OF LONDON.

To the Editors of THE LANCET.

SIRS,—In a short time members of Convocation of th University of London will receive voting papers for th election of a senator. There is now an excellent opportunit for graduates to show their disapprobation of the methods b which it is sought to increase the number of men who hol the degrees of the University. The rational method o obtaining this end would be to increase the efficiency of th teaching so that the border line man would find himself o the right side of the pass-list; the actual method adopte has been to reduce the stringency of the examinations. Th reason is not far to seek. London medical schools have fel severely the competition of the provincial schools and hav conceived the idea of attracting more students by the lure o an easily obtainable degree at the University. They ar aware that in the provinces the London degrees are held i great estimation but they are unable to realise that th cheapening of the degree is accompanied by a correspondin drop in value in the eyes of the men whom they woul attract. I say nothing of the breach of faith with those o us who took the degrees before the *débâcle* That is sufficiently rankling to need no spur at the present time.

Now of the candidates for the seat on the Senate D Graham Little is frankly and freely hostile to the policy th would reduce our degree to the level of the second rate. D Frederick Taylor, on the other hand, approves of the actio of the Senate in the recent changes and, what is mo significant, is supported by many of the teaching staff o the London schools. We want no more tinkering wit our degrees. The futile juggling with "internal" an "external" students revealed to many the hopeless chaotic state into which the governing minds had drifte at the time of the great change. As an instance, I wa registered as an internal student of medicine the year befo I took my M.D. On receiving notice that I was receive a certificate for that degree as "an extern student" I wrote to say that I was registered as "internal" student, so that the classification was wron In reply I was told that the distinction into the two class had not existed long enough to enable a student to take h doctorate "internally" and therefore I was external. T delightful clearness of this bit of reasoning led me to wri again saying that I did not want either their internal external certificate. I wanted the old certificate of t University of London. But I did not get it. I received "internal" certificate after all. But a fellow M.D. of t same hospital, the same year, and passing the same tim had to accept an external paper.

Let us return Dr. Graham Little to the Senate and follow it up by selecting similar men for each succeeding vacancy. Enough mischief has already been done to our famous university.

I am, Sirs, yours faithfully,
M.D. LOND.
Sept. 24th, 1906.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.—The winter session of lectures and demonstrations at this hospital will commence on Oct. 4th at 4 P.M. and will be continued on succeeding Thursday afternoons at the same hour. The lectures are free to medical practitioners. The opening lecture will be given by Dr. A. E Garrod on Some General Considerations of Disease as it Occurs in Children, and on Oct. 11th Dr. T. Thompson will lecture on Juvenile Asthma and its Treatment. Inquiries respecting these lectures should be addressed to the dean of the medical classes at the hospital, Dr. A. F. Voelcker.

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THE VACANCY ON THE SENATE OF THE UNIVERSITY OF LONDON.

To the Editors of THE LANCET.

SIRS,—In a short time members of Convocation of the University of London will receive voting papers for the election of a senator. There is now an excellent opportunity for graduates to show their disapprobation of the methods by which it is sought to increase the number of men who hold the degrees of the University. The rational method of obtaining this end would be to increase the efficiency of the teaching so that the border line man would find himself on the right side of the pass-list; the actual method adopted has been to reduce the stringency of the examinations. The reason is not far to seek. London medical schools have felt severely the competition of the provincial schools and have conceived the idea of attracting more students by the lure of an easily obtainable degree at the University. They are aware that in the provinces the London degrees are held in great estimation but they are unable to realise that the cheapening of the degree is accompanied by a corresponding drop in value in the eyes of the men whom they would attract. I say nothing of the breach of faith with those of us who took the degrees before the *débâcle*. That is sufficiently rankling to need no spur at the present time.

Now of the candidates for the seat on the Senate Dr. Graham Little is frankly and freely hostile to the policy that would reduce our degree to the level of the second rate. Dr. Frederick Taylor, on the other hand, approves of the action of the Senate in the recent changes and, what is more significant, is supported by many of the teaching staff of the London schools. We want no more tinkering with our degrees. The futile juggling with "internal" and "external" students revealed to many the hopelessly chaotic state into which the governing minds had drifted at the time of the great change. As an instance, I was registered as an internal student of medicine the year before I took my M.D. On receiving notice that I was to receive a certificate for that degree as "an external student" I wrote to say that I was registered as an "internal" student, so that the classification was wrong. In reply I was told that the distinction into the two classes had not existed long enough to enable a student to take his doctorate "internally" and therefore I was external. The delightful clearness of this bit of reasoning led me to write again saying that I did not want either their internal or external certificate. I wanted the old certificate of the University of London. But I *did* not get it. I received an "internal" certificate after all. But a fellow M.D. of the same hospital, the same year, and passing the same time, had to accept an external paper.

Let us return Dr. Graham Little to the Senate and follow it up by selecting similar men for each succeeding vacancy. Enough mischief has already been done to our famous university.

I am, Sirs, yours faithfully.

Sept. 24th, 1906. M.D. LOND.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.—The winter session of lectures and demonstrations at this hospital will commence on Oct. 4th at 4 P.M. and will be continued on succeeding Thursday afternoons at the same hour. The lectures are free to medical practitioners. The opening lecture will be given by Dr. A. E. Garrod on Some General Considerations of Disease as it Occurs in Children, and on Oct. 11th Dr. T. Thompson will lecture on Juvenile Asthma and its Treatment. Inquiries respecting these lectures should be addressed to the dean of the medical classes at the hospital, Dr. A. F. Voelcl

For subcutaneous injections amber-glass ampullæ of quinine lactate in isotonic solution are recommended as being those which give the best results with the least discomfort. Incidentally it may be remarked that the diaphoretic action of whisky is insisted upon here, as compared with the action of cognac. British physiological chemists might well try to solve this problem. It may well be that the enormous quantities of whisky which are exported to our possessions beyond seas may be found to be, good and bad alike, more deleterious than even the teetotalers imagine.

The excellent collection of specimens, macro- and microscopic, is yearly being added to and as much as possible is done in the way of instruction by means of the epidiascope The teachers could not be more painstaking with the students, each taking a pride in making the sometimes very abstruse problems clear to all and grudging no pains and time to do this. To German thoroughness cosmopolitan *savoir faire* is added—the result being all that can be desired from the student's point of view. The extraordinarily small fee—£5—charged for the instruction afforded, with all equipment for practical work, deserves imitation in more ambitious centres.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Care of Lunatics.

IN these days of high rates and constantly increasing expenditure it is *an encouragement to hard-pressed ratepayers* to discover any indication, if only from its novelty, of a wish on the part of a public body to use care and discrimination in the spending of public money. Whether lunacy is increasing or not, there is no question of the heavy burden which the care and maintenance of pauper lunatics place on the ratepayers of Lancashire. At a meeting of the Prestwich (North Manchester) guardians on Sept. 20th a letter was read from the clerk of the Lancashire asylums board inviting the chairman, the chairman of the workhouse committee, and the clerk of the Prestwich guardians, to a conference with a special committee of the Lancashire asylums board to be held at Preston on Sept. 27th. The subject to be discussed is whether it may be possible "by a closer coöperation between the asylums board and the boards of guardians in the county to reduce the cost of the maintenance of pauper lunatics to the ratepayers." It is said that about three-fourths of the certified lunatics are kept in the asylums, and one-fourth in the workhouses. It is possible that with more careful classification this proportion might be altered without disadvantage to the inmates of either and to the relief of the congested asylums. Some of those in the workhouses ought to be in the asylums if only there were room for them, while many chronic and harmless inmates of the asylums might be quite well cared for in the workhouses. One of the matters to be considered is whether in order to accommodate the harmless class of lunatics "an extension of the workhouse accommodation should be made or some separate accommodation for them provided in close connexion with the asylums." The asylums board does not suggest, nor it is said does it intend to suggest, "that the financial responsibility with regard to lunatics properly falling upon them and upon the county generally should be transferred to the boards of guardians and to the individual unions." However this may be arranged, the chief interest to the ratepayers is that the great weight of the maintenance of paupers—sane and insane, able-bodied or ailing—is beginning to be perceived by those who control expenditure and there is a prospect of an effort, without harshness or injustice, to be careful and not lavish. The Prestwich board decided to accept the invitation.

School Children's Sight.

Dr. A. Brown Ritchie, medical officer to the Manchester education committee, states in a report on defective eyesight in city school children that there are 85 children in the municipal schools with defective vision "of such a degree as to warrant special educational treatment which could not be given in the ordinary classes of a public elementary school." He will not have the figures from the non-provided schools till the end of the year. There are a considerable number of children with grave defects of eyesight not provided with glasses. This is very much the fault of the parents who in many cases are too indifferent to the welfare of their children or too ignorant to trouble themselves much about it. There is a subscription fund from which the children of very poor persons can be fitted with spectacles, if the parents will take a little necessary preliminary trouble "but, unhappily, they will not always exert themselves to this extent to preserve their children's eyesight." It is to be feared that this statement is applicable to others than the "submerged" of the labouring classes.

Rochdale Infirmary Memorial.

The Rochdale people are evidently in earnest as to their decision to extend the infirmary as a memorial of the jubilee. Several of the cotton-spinning companies are contributing to the fund required. The Rochdale Provident Coöperative Society is giving £1000 to commemorate the jubilee. The sum of £500 is to be given to the infirmary, a drinking fountain is to be placed in Broadfield Park, and the balance is to go to the Nurses' Home.

Vaccination Exemptions.

The Heywood magistrates continue to have a busy time in giving certificates of exemption to antivaccinationists. On one day about a week ago 19 were issued. Only five of the applicants were from Heywood itself, the remainder being from a wide area of Lancashire and Cheshire, Manchester itself sharing in this scheme for insuring the spread of small-pox. The ignorance, and in many cases the sheer and absolute fanaticism, displayed are somewhat depressing and seem to show that mental decadence is accompanying the physical deterioration unquestionably affecting some sections of the population. It is cheering, therefore, to find that at Bury, not very far from Heywood, the magistrates have refused to reduce the price of exemption certificates from 2*s*. to 1*s*. as they were requested to do by a local anti-compulsory-vaccination society. The scale of fees is approved by the Bury town council and sanctioned by the Home Secretary.

Sanitary Inspectors' Conference.

The Conference of the Sanitary Inspectors' Association, presided over by Sir J. Crichton-Browne with his usual ability, has been marked by very useful papers and discussions on sanitary matters. Mr. West, chairman of the executive council, drew attention to a principle not always kept in mind which is equivalent to the old axiom that prevention is better than cure. He thought that there was a tendency to give too much consideration to the "contagious particle," the seed, or germ, and too little to the soil in which it had to develop its brood. It seemed to be considered necessary to find "disease-producing organisms" in cockles and oysters before insisting that the water where they lived should be free from filth and, as at Lincoln, to prove the existence of typhoid germs in a water-supply "by means of the ravages of an epidemic before the central authority in the land found it necessary to insist on the provision of a pure water-supply." Though desirable and always to be aimed at, the discovery and elimination of typhoid germs from a water-supply into which they have entered by some unobserved leakage before an epidemic threatens are by no means easy, the epidemic itself being in many cases the first thing that casts suspicion as to the water being its cause. But apart from the loss of life and the misery and distress wrought by such an illness as typhoid fever it would be worth while on the lower ground of economy to keep up a constant watch and the necessary examinations, for the cost would certainly be less than was that of an occasional outbreak of disease.

Sept. 25th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Glamorgan Water supply.

THE Glamorgan county council obtained in the present session of Parliament an Act enabling surveys to be made to ascertain the amount of water available for the supply of the inhabitants of the county. A further step was taken at the last meeting of the council when a solicitor was appointed to make a summary of the powers and obligations of the several Water Acts of boroughs, district councils, and water companies authorised to supply any part of the county. At the many foes but this is its first experience of a bombardment at the hand of a small but agile force of monkeys.

Though the tunnel is now completed the water difficulty is not yet solved. Enough, and more than enough, water can be obtained, but there is not sufficient storage room for this water. The scheme comprises reservoirs to a capacity of 17,000,000 gallons; then another 30 acres can be added to the catchment grounds and the water difficulty will be at an end for ever. Till this is done the authorities dare not encourage the consumption of their new town supply. The Mediterranean Club, all the soda-water manufactories, the shipping, and the various industries get their water directly from the main supplied by the rain collected on the rock and stored in the great reservoirs. But there is a danger that the 5,000,000 gallons which these reservoirs contain may not suffice during a very dry season. The inhabitants who subscribe are given a water meter and pay for every 100 gallons which they consume. In some 500 houses at Gibraltar the water collected on the roofs is no longer drunk, but some of these inhabitants drink the town supply which they take in jugs from a public fountain. Also it can be taken to their houses and sold to them from a water-cart, or when the house is near enough to a water main their cisterns can be filled by means of a hose. This latter, when practicable, is the easiest and cheapest method. To increase the supply of pure water available pending the construction of further reservoirs the condensers which were used for the Boer prisoners at Bermuda have been purchased and will be put up at Gibraltar. In the meanwhile the sanitary authority has to keep a very keen watch over the roofs and the cisterns of the houses. These must be thoroughly cleaned at least once a year. Then if the water is befouled it only affects one household. The same system, the gathering and storing of rain water from the roof for drinking purposes, prevails largely in Spain but it is not so strictly regulated. Of course this is a soft water, but I could not find that any complaints had been made as to its effects on metallic cooking utensils or on the people who drank it. On the other hand, it is notorious that crews of ships who have to drink condensed sea water soon suffer. In regard to the rock catchment water, it must be noted that before reaching the reservoirs it goes through a rough filter of large stones which retains the larger objects that float down with the water. Then it is more carefully filtered through polarite and also aerated by falling some 40 feet in a thin sheet or spray which forms a sort of cascade. All this must make some alteration in the quality of the water which doubtless takes up a slight quantity of mineral matter, so that it is no longer pure rain water, which, if considered merely as distilled water, might be injurious when drunk in large quantities. Thus, and as matters now stand, there is still a risk that the water-supply may prove insufficient during a very dry season. On the other hand, the water is free from organic contamination and can be drunk with impunity. Dr. W. Turner, surgeon to the colonial hospital and civil prison, informed me that he barely saw more than a dozen cases of typhoid fever in the course of the year, and of these at least half came from ships and were not inhabitants of Gibraltar. What now remains to be done is simply to enlarge the capacity of the reservoirs. Then with the vast catchment grounds on the Catalan Bay side, the tunnel to bring the water collected there over to the Gibraltar side, and reservoirs large enough to keep a sufficient reserve, the great fortress will be safe and able to face every emergency.

THE INSTITUTE FOR TROPICAL HYGIENE IN HAMBURG.

(FROM A CORRESPONDENT.)

HAMBURG, which owes so much to the sea, has done its best for the seaman. Alongside the splendid Seamen's Hospital, and in direct connexion with it, stands the institute for the study of the diseases which are incidental to life at sea and in the tropics, an institute which, although it has been for so few years in existence, has done a great deal to further our knowledge of the many and vast economic problems which, it is now recognised, arise from the heritage of the white man in the tropics. Under the direction of Professor Nocht, with the collaboration of Staff-Surgeon Fülleborn, Dr. Otto, Dr. Viereck, Dr. Mayer, and Mr. Giemsa, there is given a thoroughly solid instruction in the methods to be adopted in elucidating these problems. As Hamburg had honoured itself by honouring Fritz Schaudinn, the great protozoologist whose too early death leaves a gap which it will be hard to fill, so the institute honours itself by giving attention to the many facts of protozoology on which light was shed by the labours of Schaudinn, labours which may be imitated but can hardly be equalled by any of his successors. The importation of babesia parva, the cause of "coast fever," into East Africa may have far-reaching results; the presence of trypanosoma Gambiense is ruining Uganda; and as we have the stegomyia and the other necessary conditions for the life of the parasite of yellow fever already in India the opening of the Panama Canal will probably lead Great Britain to take great interest in the development of that parasite. India has for long been the home of cholera and for some years the home of plague; will she form the home of Yellow Jack? This is a question for those who busy themselves with lowly forms of life to answer. And these lowly forms are of interest other than medical: the history of the development of a trypanosoma throws light on Weismann's once-scoffed-at theory and might well give pause to those who hold that natural needs can be modified by education. Here, too, is a rich field for those who love to twist facts to suit the theory of the equality of the sexes—a field in which the workers are as yet but few.

In the Seamen's Hospital the treatment received has to be paid for—a fact which, unusual as it is in Britain, has caused many a British sailor to be taken away when the captain could not see the immediate need for treatment, as in the early stage of typhoid fever, or knew not whence the money was to be got to pay for the case. Surely here is an opportunity for some philanthropist who has at heart the immense importance of our merchant service to do a good turn to Jack Tar by endowing half a dozen beds in this hospital for British seamen. In the wards may be seen cases of typhoid fever, a disease from which Hamburg would be free, thanks to its excellent water-supply, were it not imported by seamen and others. After careful study of all methods of treatment that by baths and diet has come to be adopted with excellent results. There are cases in the various stages of beri-beri, a disease which, whatever the bacteriologists may say, has more than an accidental connexion with the want of a proper meat diet; cases of helminthiasis, among whom one may see those which present the profound anæmia caused by the bothriocephalus latus, an anæmia which is due certainly to the demands made on the organism of the host and also, it may be, to a profound change in the bone-marrow cells, caused by toxin excreted by the parasite. The cases of dysentery are mostly of the amœboid form and it is found that the mistura simarubæ cum cortice radicis granati, recommended by Gräser, is of great service in these cases. Enemata are also much used and consist of a 1–2 per 1000 solution of tannic acid, of which from half to one litre is given at a time. I was glad to see that much stress is laid on dieting by means of raw meat. For years we have in India adopted this means of nourishing the patient whenever no religious prejudices stood in the way and have found that it is much less irritating to the bowel than milk, which is mostly excreted as firm curd.

Of malaria the cases are many. In one case all three forms of the parasite—quartan, tertian, and tropical—have been observed, a fact which may interest those who hold with Laveran that all are but modifications due to external influences. The treatment is briefly one gramme of quinine hydrochlorate, divided into five doses, in the 24 hours; it has been found that larger doses at a time are liable to cause symptoms of blackwater fever in the African cases. For these when they can take only a small dose a system of dosage is pursued by which the organism becomes habituated to the drug and finally is able to absorb with benefit quantities which at first would have caused very untoward results. With true German thoroughness all sides of the question have been studied and the use of sugar-coated tablets is condemned, as the coating becomes very hard in a short time. Capsules, easy of dissolution in water and accurate in dosage, such as those prepared in Frankfort, may be recommended. Those who have seen the "quinine pills," as hard as B B shot, which used to be the stock in Indian dispensaries, will appreciate the importance of this small matter.

same time the county medical officer of health was instructed to obtain statistics of the quantity and quality of the existing supplies and of the probable deficiencies of such sources for the growing population. The reports of these officials will be laid before a conference which is to be held at Neath on Oct. 8th, when representatives from the corporations of Cardiff, Swansea, and Merthyr and from the district councils in the county will consider the best means of utilising the existing sources of water-supply and of obtaining others.

A Pauper Register.

A communication has been sent from the Local Government Board to boards of guardians in England and Wales requesting that a register may be kept by the clerks to the guardians of every person relieved during next year whether in the workhouse or as an outdoor pauper. The form of register suggested by the Board includes, in addition to the names, age, and occupation of the person relieved, a record of the dates between which he has been receiving relief, the form of relief, and the reason for its discontinuance. A yearly summary will give the total length of time during which the person has been chargeable and the number of times he has been relieved during the year. The information to be obtained from these records ought to be extremely valuable but if it is to be trustworthy it is necessary that strict accuracy should be insured. The clerk to the Cardiff board of guardians has stated that it will be impossible to keep the register without extra clerical assistance and the guardians have asked the Local Government Board whether the expense involved will be borne by the Imperial funds. There are about 6000 paupers in Cardiff and it is thought that the work of keeping the register would employ nearly the whole of the time of one clerk.

Bristol Municipal Lodging House.

Some of the members of the health committee of the Bristol corporation are concerned that the newly established municipal lodging house is not already paying its way. There is accommodation for 120 men and the general arrangement and administration are on the lines of similar undertakings at Croydon, Southampton, Salford, and elsewhere. The cost of the Bristol house was just over £10,000, of which sum £1600 were for land and £1000 for furnishing. The accounts for the year ending March 25th, 1906, show a total loss of £846, or if the repayment of loans and interest is excluded of £260. The charge made to each lodger is 6*d.* per night. To those who are familiar with the conditions of many common lodging houses in our large towns a mere money loss upon the maintenance of a cleanly, well-ventilated, and properly conducted municipal lodging house will not be regarded as a real loss. There must be some gain to the community in the increased self-respect of the lodgers, even if we leave out of consideration the physical gain which must accrue to them through their more satisfactory surroundings. It is to be hoped, therefore, that the city council will not be disheartened with the result of the first year's working of its lodging-house and will not accept the suggestion of some members to sell or to let the buildings.

The Dolgelly Urban Council and Isolation.

At a meeting of the Dolgelly urban council, North Wales, on Sept. 21st the medical officer, Dr. Hugh Jones, reported that the scarlet fever epidemic had apparently come to an end and the general health of the district was most satisfactory. Mrs. Vaughan, who made an offer some months ago of a free gift of land for the erection of an isolation hospital, wrote to him that the council must come to a decision before Sept. 29th. She felt that the council had had ample time to consider the matter. She made the further condition to her offer that a reasonable scale of charges should be drawn out for the reception of patients from a few neighbouring parishes. The medical officer said that the offer could not fail to be an inestimable boon to the town and district for many generations. The rural district council, which had agreed to contribute one-third of the cost, wrote that it had rescinded that resolution. Objection was taken by the urban council to the compulsory condition imposed by Mrs. Vaughan and some members regarded the site as unsuitable and inconvenient. Dr. John Jones strongly urged his fellow councillors to accept the offer; if not they undertook a great responsibility and made a retrograde step. The hospital would be entirely under the council's control and the new condition would be an advantage. On a vote a motion was carried, inasmuch as the rural district council declined to coöperate and as there was no power to spend money outside the district, not to take any further action. Four members only voted for an amendment to accept Mrs. Vaughan's offer with the new condition. Another amendment that it was essential to erect the hospital without any restrictions was not accepted and there the matter was left.

Enteric Fever at Basingstoke.

As the result of the recent epidemic of enteric fever at Basingstoke, the cause of which was traced to the town water-supply, the borough council had 50 actions for damages entered against it in the High Court, the damages claimed aggregating nearly £4000. By arrangement a committee of the claimants met a committee of the Ratepayers' Association, with the result that the council has agreed to pay £1671 in settlement of the actions without prejudice and with denial of liability.

Sept. 24th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Post-Graduate Course.

THIS course was opened on Sept. 17th by a meetin in the anatomical theatre of the University, presid over by Principal Sir William Turner. The chairm welcomed those who had come to avail themselves post-graduate instruction and expressed his confidence th all those who had undertaken the giving of instructio would do so most conscientiously. Dr. Byrom Bramwe then addressed the meeting, dwelling upon the need the was for such a course in Edinburgh to enable graduates brush themselves up and to acquaint themselves with th newer methods of clinical investigation. Clinical investig tion had become much more elaborate than it used to b and in the Edinburgh school where much attention w given to teaching all these methods were in use. Imme diately after this introductory meeting the work the programme was entered upon. There has bee an unexpectedly large number of graduates come forwa for this course, but so far as can be gathered the are much pleased at the provision which has been mad for them. Some of the more technical classes hav been a little hampered by the numbers entering f them, but this has been arranged as well as possible an in future years provision can be made for larger number Amongst the entertainments provided are a reception give by the Royal College of Physicians of Edinburgh and at-home by the President of the Obstetrical Society. Th course lasts for three weeks and the days are filled fro 9 A.M. to 4 or 5 P.M.

Eyesight of Glasgow Children.

A report on the eyesight of the children attending t Glasgow schools has just been handed in by Dr. H Wrig Thomson to the school board of Glasgow. There is nothi particularly new in the report, but it should be useful calling attention afresh to the undoubted evils which handic our educational system and to some of the obvious remedie The teachers tested the visual acuteness of 52,493 childr and found 18,565, or 35 per cent., to be below what regarded as the normal standard. Dr. Thomson examin the 18,565 defectives by retinoscopy and found tha 11,209, or 21 per cent. of the whole, had ocular defects. The percentage with ocular defects was fairly constant in all the schools, but the percentage with defective vision was very variable—i e., many children with normal eyes were found to see badly. The proportion of these cases was highest in the poor and closely built districts and in old schools, and was lowest in the better class schools and in those near the outskirts of the city. The proportion of such cases in the country schools of Chryston and Cumbernauld was much lower than in any of the city schools; and in industrial schools, where the children are fed at school, the proportion was lower than among board school children of a corresponding social class. Defective vision, apart from ocular defect, seems to be due partly to want of training of the eyes for distant objects and partly to exhaustion of the eyes, which is easily induced when work is carried on in bad light or the nutrition of the children is defective from bad feeding and unhealthy surroundings. Regarding training of the eyes for distant objects, Dr. Thomson thinks that much might be done in the infant department by the total abolition of sewing, which is definitely hurtful to such young eyes, and

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Wellcome Research Laboratories.

THE second report of these laboratories, which are attached to the Gordon Memorial College at Khartoum, has now been issued and, thanks to the munificence of Mr H. S Wellcome, the report is not only three times the size of the former one but is illustrated by 21 beautiful plates, mostly coloured. and by more than 100 illustrations. The greatest credit is due to the editor and director of the laboratories, Dr. Andrew Balfour, who, less than three years ago, started work at Khartoum with one laboratory boy and two black servants. He is now aided by a chemist, a travelling naturalist, an economic entomologist, and two European assistants. The first photograph shows very strikingly a dust storm sweeping over Khartoum in the month of June and illustrates one of the difficulties encountered in a town where there are no double windows, electric fans, electric light, or dust-proof rooms. There is every indication that much good work will continue to be done in these laboratories, for two Carnegie Research Fellows have been invited to conduct investigations there, the one working on chemical and the other on bacteriological or pathological lines, and a floating laboratory for collecting museum specimens from the various rivers will soon be organised The anti-mosquito work has been well continued, for although it was originally noted that more than half of the wells and pools were infected, anophelines and malaria are practically banished, the stegomyia is seldom found, the dangerous pyretophorus is kept in abeyance, and the ubiquitous culex has ceased to be a nuisance. It has been found that the amount of oil which must be used per well need never exceed half a pint and that even two ounces have been found to be ample if none of the oil is lost by splashing. Only six men are engaged in this work under an English inspector, so that for less than £100 per annum Khartoum is kept practically free from malaria and from the perpetual torment of mosquitoes. Dr. Balfour states that 16 different genera, comprising some 35 species of culicidæ, have now been found in the Soudan. There is a special article on biting and noxious insects other than mosquitoes, including tsetse fly, the jigger, ticks, and locusts. The glossina morsitans, the carrier of trypanosomiasis in animals, has been found as far north as latitude 12° N., and is very numerous in the Bahr-el-Ghazal province, where it causes great loss amongst mules and donkeys. The glossina palpalis has been discovered north of latitude 5°, close to the Lado Enclave, and stringent orders have been given to prevent any recruiting into the Egyptian army from the natives of Uganda and other districts already invaded by sleeping sickness. Mr. Austen and Mr. Theobald, of the British Museum, have written valuable descriptions, beautifully illustrated, of *blood-sucking and other diptera and* mosquitoes from the Soudan. Though sleeping sickness has so far not been encountered within the Soudan, it is to be remembered that Dr. Todd mentions the occurrence of a case at the Lado Enclave, and that Dr. Neave found Leishman-Donovan bodies in the spleen of a boy coming from the Bahr-el Ghazal. A detailed account is given of inoculation experiments on dogs, monkeys, and mice with the trypanosome of mules. Chrysoidin has been tried on patients suffering from various tropical diseases, including a boy from Uganda, who has trypanosomes in his blood. No definite cure has been obtained but Dr. Balfour reports that this dye seems to cause a disappearance of the trypanosomes from the peripheral blood and from the gland juice; the only disadvantage of the treatment is that the drug is distinctly irritating to the kidneys, causing copious albuminuria, and must therefore be used with caution. Dr. Neave made some experiments to test the therapeutic effect of the blood serum of wild animals (water buck) from trypanosome-infected districts on animals inoculated with trypanosomiasis. Rabies has occurred in Khartoum and there has been one case of hydrophobia; several fatal cases of diphtheria took place during the year among native babies; enteric fever is still rare; bacillary dysentery is not uncommon amongst the Egyptian soldiery; and one rare case of hydatid of the femur causing extensive erosion of the bone was sent by Captain S. L. Cummins, R A M.C Dr. Neave gives an excellent account of the various parasites which he met with in the southern part of the Soudan and Dr. Bean furnishes a report of the chemical section of the laboratories. He examined 42 samples of river water and 15 of well waters, besides making 150 other analyses. He finds that the White Nile is never free from an appreciable amount of suspended matter, while the Blue Nile, on the contrary, although carrying in flood an enormous amount of mud, becomes almost clear from January till June. The highest proportion found was on August 12th, 1166 parts per 1,000,000. and the lowest on Jan. 12th, only 4 parts per 1,000 000. A dairy, under Government management, exists in Khartoum, but it is only open during the five cool months; for the rest of the year no butter is to be had and the only milk available is that supplied by natives from goats and cows. The Europeans are therefore driven to use milk powders, which are prepared by evaporating milk to dryness on a revolving cylinder, and by heating to 230° F. Dr. Bean praises this milk for those travelling in the interior. It is bacteriologically sterile, and the powder, if made into a preliminary paste, can be mixed with hot water and the reconstituted milk proves to be of very agreeable taste. He even suggests that milk powder would be extremely useful for those unable to digest ordinary milk. It appears that the chief gum-producing countries are the Anglo-Egyptian Soudan and the French colony of Senegal, and that the production of gum, as shown by Greig Smith, is due to a specific microbe, named bacterium acaciæ, the gum being formed from the wandering sugars, levulose and maltose, in the sap. A native remedy for syphilis in the Soudan is an earth dissolved in water, and called tureba; Dr. Bean finds it contains no mercury, as reputed, but that it is merely a saline purgative. Enough has been said to show that this report is well worth reading.

Sept. 18th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Bubonic Plague.

A WHARF labourer suffering from plague was removed to the Coast Hospital, Sydney, on July 23rd. A previous fatal case was supposed to have been contracted at the wharves, the patient having been a shipping clerk. A plague-infected area has, however, been discovered at Exmore in the vicinity of the house in which he had lived. No further cases of plague have developed among the passengers of the Peninsular and Oriental steamer *Britannia* which was quarantined at Adelaide.

Scarlet Fever.

An epidemic of scarlet fever has broken out at Sydney and its suburbs The number of cases notified for the fortnight ending August 11th was 223. The mortality is about from 1 to 1½ per cent. Inquiries made by the health department showed that the spread of the disease was due solely to infection in the ordinary way and that the milk-supply had nothing to do with it.

Hospital Affairs.

This is the time of year when nearly all the hospitals and charitable institutions hold their annual meetings and elect their governing bodies.—The meeting of the supporters of the Melbourne Hospital was held on July 25th. The report stated that the income of the institution has, for the second year in succession, been sufficient to meet the expenditure without recourse to extraordinary appeals. The ordinary income for last year was £23 671 which, with extraordinary income amounting to £4827, brought the total income for the year up to £28 498. The total expenditure for last year was £25 224. During the year 23 388 patients were treated at the hospital. Of these 4802 were in-patients, 11,328 were out-patients, and 7258 were casualty cases. With reference to the provision made in Victoria for the treatment of consumptives the committee expressed the view that it is improper that a large number of persons in various parts of the State who contract the disease should, when it had reached a hopeless stage, be sent to a city hospital for treatment The total provision made for consumption in the State was altogether inadequate. It is estimated that in Victoria 2000 persons die annually from the effects of tuberculosis.—A steady year's work was reported at the annual meeting of contributors to the Queen Victoria Memorial Hospital for Women and Children, Melbourne Treatment had been given to 263 in-patients and 2909 out-patients. Of the in-patients constitution will be framed by a special edict. According to the Order in question the numbers of the officers will be as follows for each grade respectively: *Médecins principaux* of the first class, 12; *médecins principaux* of the second class, 18; *médecins-majors* of the first class, 88; *médecins-majors* of the second class, 175; *médecins aide majors* of the first and second classes, 141; *pharmaciens principaux* of the first class, 1; *pharmaciens principaux* of the second class, 2; *pharmaciens-majors* of the first class, 5; *pharmaciens-majors* of the second class, 19; and *aide-majors* of the first and second classes, 19.

Bani Sickness.

At a meeting of the Academy of Sciences held on Sept. 17th M. Laveran communicated a note from M. Cazalbou, military veterinary surgeon, upon the diffusion of a trypanosomiasis brought about by a fly other than the glossina. This fly is closely related to the tsetse. M. Cazalbou having discovered that a focus of trypanosomiasis existed in the Bani district, the Bani being an affluent of the Niger, captured some of the flies in question and brought them down to Segou where some dogs which had been proved to be free from trypanosomiasis were bitten by them. Two out of seven dogs were infected.

The Association for the Repression of the White Slave Traffic

The Third International Congress for the Repression of the White Slave Traffic will be held in Paris from Oct. 22nd to 25th. The following can take part in the Congress: (1) Official delegates of Governments and public bodies; (2) delegates from associations and committees organised in the respective countries for the repression of the traffic; and (3) representatives of philanthropic associations and various persons interested in the study of social questions. Every national committee can send ten delegates. Every member of the Congress without exception must contribute a subscription of 20 francs and in return for this will have a right to all publications, papers, and transactions of the sittings of the Congress. All papers to be read before the Congress should be edited and translated into French at the expense of the national committees. The deliberations of the Congress will be held in the French language. Foreign members, however, can speak in their own language if they like but a *résumé* of their subjects must be communicated in French to the Congress. No speech or paper is to exceed 15 minutes in delivery. The transactions of the meetings will be eventually issued and sent to every member of the Congress. Subscriptions should be sent to M. Loys Brueyere, treasurer of the French Association, 10, Rue Pasquier, Paris.

Sept. 25th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Fourth Congress of the National Association of Medici Condotti at Milan.

A CONGRESS of 6000 members! This was the muster of *medici condotti* at Milan on August 30th and succeeding two days, assembled to discuss and to protest against the grievances of their long-suffering and much neglected class. The first congress of the association, also held at Milan, numbered barely 300 members. This rapid and enormous growth speaks eloquently of the urgent need there is for reforms and of the determination of the whole service to obtain them. But, as the retiring president, Dr. Villa, remarked, the task is no easy one owing to the inertia of the governing powers and the frequent changes of ministry, by reason of which constantly renewed efforts on the part of the service are rendered necessary in order to accomplish anything. In proof of this ineptitude of the Government he pointed to the unwarrantable delay in the publication of the regulations affecting the sanitary law of February, 1904, and to their failure to grant study leave and to provide gratuitous courses at the universities whereby the *medico condotto*, whose lot was so often cast in remote isolated country districts, might at intervals be enabled to refresh his knowledge and thus be the better prepared to wrestle with the socio sanitary problems which so profoundly affect the welfare of the poorer classes—such, for instance, as the propagation of syphilis, the excessive infant mortality, the ravages of tuberculosis and alcoholism, and the havoc wrought by malaria. These remarks of Dr. Villa had their sequel in a telegram from the Minister of the Interior which was read at the following sitting assuring the congress of the immediate publication of the regulations; and, indeed, before the conclusion of the congress this publication actually took place. But in announcing the fact the President, Dr. Brunelli, commented adversely on their unsatisfactory nature and after registering a formal protest the congress resolved that at the approaching dissolution of the present Parliament an electoral committee should be formed to secure the election of deputies to the new Parliament favourable to the desired reforms and pledged to vote for them. Amongst other business transacted was the passing of resolutions recommending the popularising of sanitary knowledge by means of conferences to be held by the *medici condotti*; the formation of a committee to study various socio-sanitary problems by means of a series of questions addressed to members; and the giving of a preference to the *medici condotti* in the vicinity, when, under the new *régime* of State control of railways, medical officers should come to be appointed to the different sections along the various lines. A motion was proposed urging the assumption by the State itself of the organisation of the public health service by which means the dependence of the *medici condotti* upon various local bodies subject to pernicious influences might be avoided and their position and freedom of action thus become more assured. This proposition was referred for discussion to the sections and will be brought up again at the next congress. In the form of an order of the day a remonstrance was addressed to the Government for not carrying out more strictly the provisions of the law regulating the practice of medicine and surgery by foreign medical men and of dentistry by dentists not holding a diploma in medicine and surgery. As a mark of their appreciation of Dr. Villa's services as president the members of the congress before separating subscribed a considerable sum to be devoted, under the name of the "Enrico Villa Foundation," to the support of one child at the Perugia College for the orphans of *medici condotti*. Venice was chosen as the seat of the next (the fifth) congress of the association.

Trachoma and Italian Emigrants.

It is a fact, only too well known to the shipping companies engaged in the transport of emigrants from Italy to America, that trachoma is extremely prevalent in this country, so much so that one of the most important qualifications required by a surgeon of an emigrant vessel so engaged is ability in "spotting" this disease. It is not unusual for the ship surgeon who has a little time at his disposal at one of the Italian ports such as Genoa or Naples to employ it in gaining experience at one of the local eye clinics in the diagnosis of trachoma which in its slighter degrees may easily be overlooked by an unwary or unpractised eye, especially when, as is sometimes done "with intent to deceive," the reddened conjunctiva has been temporarily blanched by the application of a solution of cocaine or adrenalin. The United States authorities in particular are extremely strict in regard to it and rigorously exclude its victims from their shores. Any emigrants, therefore, afflicted with it who escape the vigilance of the ship surgeon on embarkation and are inadvertently allowed to cross the Atlantic are not permitted to land at American ports and have to be brought back to Italy at the steamship companies' expense. Its ravages are greatest in Southern Italy but few parts of the kingdom are exempt from the scourge. At Barletta it has become so prevalent that measures have lately been taken by the prefect and syndic to arrest its spread and special arrangements made for the reception and treatment of the patients at the eye hospital.

Pellagra at Fermo.

The extension of pellagra in the province of Fermo has attained such proportions as to determine the provincial council for pellagra to offer prizes for the best method of combating it successfully. Public money has been voted for holding conferences and printing pamphlets on the cultivation of maize, for exchanging sound for deteriorated grain, for the purchase of portable desiccators, and to provide a bonus for those who substitute other crops for maize, who construct suitable granaries for its storage, or who adopt a rational type of hygienic dwelling for their labourers.

Sept. 16th.

253 had been discharged and 27 died. The total expenditure was £1908 and as the actual income was only £1675 a shortage remained of £233 which reduced the credit balance of the institution from £262 to £29.—The annual meeting of the subscribers to the Women's Hospital, Melbourne, was more largely attended than usual owing to a proposal submitted to alter the constitution of the committee. At present it is composed of 15 ladies and six gentlemen, and it was proposed that the 21 members should be elected without distinction as to sex. The reason for the proposed change was that the gentlemen on the committee differed from the ladies about getting competitive designs for new buildings. The ladies want an open competition and the gentlemen consider that the architect who has already done work for the committee should be employed to draw up plans. At the meeting the mover of the proposed alteration found that the feeling of those present was so opposed to him that he withdrew the motion. The annual report stated that the ordinary receipts were £6275, or an increase of £160 over the previous year.

The Medical Practitioners Bill.

The Medical Practitioners Bill has been read a second time in the Legislative Assembly of Victoria. It is practically the same as the Bill submitted last session, providing for a five years' course, giving power to strike names off the Register, and requiring that registration should be given only to graduates of those countries which reciprocated by registering holders of Australian medical degrees. The authorities of the Homœopathic Hospital have taken strong exception to this clause and the five years' course, which would shut out the holders of American degrees, and this is for them a decided grievance, because "America was the only place the hospital could draw on for homœopathic practitioners." A somewhat similar Bill, providing for reciprocity, has been read a first time in the Legislative Assembly of New South Wales.

Obituary.

Dr. Alexander Barber died at Paddington, Sydney, on August 13th, at the age of 54 years. He had practised at Penrith over 12 years ago and was noted for his many acts of charity and the interest he took in the affairs of the district. The attendance at his funeral was the largest seen in the district for many years. He was a Government medical officer and a member of the licensing bench. He suffered from an internal tumour, for which an operation was performed but without affording relief.

August 18th.

Obituary.

DAVID HENRY GOODSALL, F.R.C.S. ENG.,

SENIOR SURGEON TO THE METROPOLITAN HOSPITAL, ETC.

THE sudden death of Mr. D. H. Goodsall has come as a great shock to his many friends. He had recently returned from his holiday, looking better than he had done for some months. On the morning of Sept. 12th he had what, judging from subsequent events, may be called a slight anginal attack. He paid little attention to it and worked in his usual strenuous manner on that day and the next. On Friday, Sept. 14th, while in the City, he had a recurrence of the pain and when he reached home he was pulseless and in great agony. Under treatment the pain ceased and he appeared to be settling down quietly when he had an attack of heart failure and the end came shortly before midnight.

Mr. Goodsall was born on Jan. 4th, 1843, the second of four brothers. His father, who was a student at St. Bartholomew's Hospital, was pricked in the hand while engaged in making a post-mortem examination in the hospital, death being the result. He left a widow and four sons entirely unprovided for.

Mr. D. H. Goodsall was taken early from school and apprenticed to a druggist near Aldgate at about the age of 14 years. From this age he kept himself entirely. He entered St. Bartholomew's Hospital in October, 1865, being excused his fees on account of his father's death. While at the hospital he kept himself by acting as dispenser and assistant to a medical practitioner in Finsbury-square. In 1868 he was admitted a Member of the Royal College of Surgeons of England and a Licentiate of the Royal College of Physicians of London in 1870. After holding the post of midwifery assistant at St. Bartholomew's he was appointed house surgeon at St. Mark's Hospital in 1870. In 1871 he became assistant surgeon to the hospital and about this time he took up his residence in Finsbury-square and assisted the late Mr. Gowlland in his practice. It was doubtless his early connexion with St. Mark's and the opportunity he had of seeing Mr. Gowlland's extensive rectal practice which led Mr. Goodsall to take up the branch of surgery in which he so greatly excelled. In 1872 Mr. Goodsall was admitted a Fellow of the Royal College of Surgeons and in the same year he was appointed surgeon to the Metropolitan Hospital, becoming senior surgeon in 1892, which office he held at the time of his death. At St. Mark's he became surgeon in 1888 and eventually senior surgeon, and owing to age limit, he retired in 1903. He was also surgeon to St. Saviour's Hospital. But the work done by Mr. Goodsall in the out-patient departments and wards of the hospitals with which he was connected was only a part of his labours on behalf of these institutions. The following extract from a letter from the secretary of the Metropolitan Hospital will give some idea of the amount of time which Mr. Goodsall devoted to the hospital: "He was associated with the hospital when it was in Devonshire-square, City, then in the temporary premises in Commercial-street, and was largely instrumental in securing our present site. During the past 18 months he has been endeavouring to get a site for a nurses' home. Though he was the busiest man I think I have ever met he was always a most regular attendant at all meetings of committees and was a member of each of the seven regular committees. With the single exception of the late chairman (Mr. Joseph Fry, who founded the hospital in 1836 and who for 60 years practically obtained all its income) no man has done so much for the hospital as Mr Goodsall. His death to the 'Metropolitan' is overwhelming."

Mr. Goodsall was a Fellow of the Statistical Society, of the Royal Medical and Chirurgical Society, of the Medical Society of London, and of the Hunterian Society, and a member of the Clinical Society. He was joint author (with Mr. W. E. Miles) of "Diseases of the Anus and Rectum," and he contributed valuable papers on the same subject to St. Bartholomew's Hospital Reports and various periodicals. His writings were like the man—concise and to the point. He was a most careful and painstaking surgeon who left nothing to chance, and if he thought his patient was in imminent danger he would stay up all night and look after him. It is not to be wondered, therefore, that he obtained most excellent results in the special branch of surgery to which he had devoted his energies.

But Mr. Goodsall was something more than a surgeon: he was gifted with great business capacity and found time to be on the directorate of the Odessa Waterworks Company and at the time of his death he was one of the directors of the Western Telegraph Company and managing director of a printing company. Even these multifarious duties did not exhaust his energies, as the work he did for the Medical Society will prove. For 19 years he was chairman of the house and finance committee and honorary treasurer since 1896. In his hands these posts were no sinecures, so that his loss will be severely felt by the Medical Society, especially as in the last 12 months he has been taking the leading part on behalf of the society in the negotiations which have been going on for the union of the London medical societies. Only the most robust health could have stood the strain of such excessive work, and for 50 years Mr. Goodsall had not spent a day in bed for illness. He had little time for the ordinary social enjoyments but he dearly loved a game at chess or watching a good contest.

No one will be more missed by his friends, as he was ever ready to give his advice and assistance and always seemed to find time to help his friends out of their difficulties. He leaves a widow and one son. In accordance with his wish his body was cremated at the Golder's Green Crematorium on Sept. 18th.

GIFT TO KILMARNOCK NURSING ASSOCIATION.—The Kilmarnock Nursing Association has received from the estate of the late Mrs. Hannah Finnie, of the Abbey, Malvern Wells, the sum of £1000, which has been allocated to the institution by the trustees of the deceased. Recently a gift of £2000 came to the local infirmary from the same source.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board and residence.

HULL ROYAL INFIRMARY.—Honorary Physician.

LEEDS PUBLIC DISPENSARY.—Honorary Medical Officer.

LEICESTER INFIRMARY.—Resident Surgical Dresser for six months. Honorarium £10 10s., with board, lodging, and washing.

LIVERPOOL, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

MACCLESFIELD, CHESHIRE COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £140, rising to £160, with apartments, board, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, CHORLTON UNION WORKHOUSE HOSPITALS, Withington.—Senior and Junior Resident Medical Officers. Salary £100 per annum, with rations, apartments, and attendance.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Physician.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Surgeon. Also Assistant Surgeon.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon, for six months. Salary at rate of 50 guineas a year, with board and residence.

PADDINGTON INFIRMARY.—First Assistant to the Medical Superintendent and Assistant Medical Officer, unmarried. Salary £100 per annum, rising to £120, together with board, lodging, and washing. Also Second Assistant to the Medical Superintendent for six months. Honorarium of £36 and board, lodging, and washing.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and Casualty House Surgeon for six months. Board, &c., are provided. Also Resident House Physician and Resident House Surgeon. Board, &c., are provided.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried. Salary at rate of £80 per annum, with board, residence, and laundry.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—*DREADNOUGHT HOSPITAL*, Greenwich:—Two House Physicians and Two House Surgeons for six months. Salaries at rate of £50 per annum, with board, residence, and washing. Also Honorary Dental Surgeon. Also Honorary Medical Officer *for the Electrical Department*. BRANCH HOSPITAL, Royal Albert Dock, E.:—Senior House Surgeon for six months. Salary at rate of £75 per annum and additional £25 per annum for acting as Registrar, &c., with board, residence, and washing. Also House Surgeon *for six months*. Salary at rate of £50 per annum, with board, residence, and washing. Also Honorary Anæsthetists.

SHEFFIELD, CITY OF.—Visiting Medical Officer for Schools. Salary £400 per annum.

SOUTH LAMBETH, STOCKWELL, AND NORTH BRIXTON DISPENSARY, Wilkinson-street, Albert-square, Clapham-road.—Vacancy in the Medical Staff.

STAFFORDSHIRE COUNTY ASYLUM, Cheddleton, Leek.—Assistant Medical Officer, unmarried. Salary £150, rising to £200, with furnished quarters, board, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Physician. Salary £100 per annum, with board, lodging, and laundry. *Also House Surgeon*. Salary £100 per annum, with board, lodging, and laundry.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as *Certifying* Surgeon under the Factory and Workshop Act at Fulham and Hammersmith, in the county of London.

Births, Marriages, and Deaths.

BIRTHS.

METCALFE.—On Sept. 24th, at 2, St. Leonards, York, the wife of A. W. Metcalfe, M.A., M.D., of a daughter.

NASH.—On Sept. 20th, at Oulton House, Accrington, the wife of Elwin H. T. Nash, M.R.C.S., L.R.C.P., of a son.

NEWTON.—On Sept. 21st, at Brook-hill, Sheffield, the wife of Duncan Gray Newton, F.R.C.S., of a son.

STURROCK.—On Sept. 23rd, at Arima, Broughty Ferry, the wife of J. F. Sturrock, M.B., L.R.C.S. Edin., of a son.

SUTTON.—On Sept. 21st, at Clare House, Sidcup, the wife of C. R. Arnold Sutton, M.A., M.D. Camb., of a son.

WILLIAMSON.—On Sept. 21st, at Trelawney, Springfield-road, Leicester, the wife of Lieutenant-Colonel J. G. Williamson, R.A.M.C. (retired), of a daughter.

MARRIAGE.

BUCKLEY—LANYON.—On Sept. 20th, at St. Peter's, Croydon, James Charles Buckley, M.D., of Nottingham, to Mabel, youngest daughter of the late John Charles Lanyon and of Mrs. Lanyon, of South Croydon.

DEATHS.

BIRT.—On Sept. 19th, at Reading, Thomas Birt, Major, R.A.M.C., aged 41 years.

MACDONALD.—On Sept. 25th, at Carden-place, Aberdeen, James Macdonald, M.D., F.R.C.S. Eng., late H.M.I.S., in his 79th year.

TWEEDY.—On Sept. 21st, at Rutland-square, Dublin, Henry Tweedy, M.D., in his [illegible]th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A DEPARTURE IN AGENCY ROUTINE.

A MEDICAL correspondent who is the licensee of a home for inebriates has forwarded to us some papers which he has received from the Southern Medical and Scholastic Agency, Limited. The secretary of this company informs our correspondent that they "are about to issue and advertise widely a list of those willing *to receive resident patients* and if you wish an advertisement of your requirements inserted kindly fill in and return the enclosed form." The fee for an advertisement in the forthcoming list is 10*s*. 6*d*. per annum which cannot be called expensive, but in "the enclosed form" we find the following guarantee has to be signed:—

> "I herewith enclose the fee agreed (10*s*. 6*d*.) for registration and advertisement referred to and I further undertake to pay to you 5 per cent. upon all fees received from any patient introduced by you during the first six months of their residence at my house."

The departure of the Southern Medical and Scholastic Agency is open to criticism.

THE CONSULTANT AND THE GENERAL PRACTITIONER.

To the Editors of THE LANCET.

SIRS,—I was interested in the letter signed "M.B. Lond." in THE LANCET of Sept. 22nd, p. 841. Personally, I have received the very greatest kindness, courtesy, and help from consultants in every part of England except once, some 20 years since, when a patient, and personal friend, took his daughter, without my knowledge, to a consultant at Liverpool. On his returning home he called to *see me* at once and told me that the consultant seemed annoyed that there was no letter from me and asked me to write to him; this I did, giving a full account of the family history, which was *not* favourable. The consultant sent the letter direct to my patient; needless to say I lost both friend and patient.

I am, Sirs, yours faithfully,

Millom, Cumberland, Sept. 22nd, 1906. PERCY B. STONEY.

To the Editors of THE LANCET.

SIRS,—I have had some strange experiences with consultants. I have had dealings with one who generally fixes the *time* so that the medical man in charge only gets the message some time after the hour fixed, the consultant examines the patient alone and tells the patient that he will write to tell his medical man, say what is wrong and what he *recommends* should be done. I give some facts regarding the last case saw with this consultant. A club patient suffering from intestinal obstruction was doing well at 7.45 one Friday evening, when called, and there was no mention of a consultation. At 9.30 the same night a messenger brought word that a consultant would be at the patient's house (a mile away) at 10 P.M. I met him. On Saturday I was asked to meet him again and did so. On calling on Sunday night I was *told* that the consultant had called to inquire how the patient was (I think he saw the patient) and had offered to meet me again on Monday if I wished it, and I, perhaps foolishly, met him again. On the Tuesday I got a note *from* the patient's wife telling me that the consultant had taken the case over and I need not call again. The consultant kept that case on for two or three months without a word or note to me.

This case raises other points. The patient was an Oddfellows' secretary and was paying 4*s*. per annum. (*a*) What should the club medical officer charge for the three consultations practically forced upon him at inconvenient times? (*b*) The patient has been ill again and asked him to call. What should he do? I am a lover of peace and wish to do right.

I am, Sirs, yours faithfully,

Sept. 24th. M.B. Edin.

⁂ (*a*) The club medical officer must be bound by the rules of the society, in whose service he is, as regards the fees for consultations, if such rules exist. If there are no such rules we think he should charge his usual consultation fees. (*b*) He may well *refuse* to see the patient again but as he describes himself as a lover of peace he may prefer to continue attendance.—ED. L.

ANCIENT OCULISTS.

AN interesting instance of the comradeship of men of science notwithstanding political international rivalries was recently provided by the eulogium passed at the French Academy upon Dr. J. *Hirschberg*, *professor of ophthalmology* at the University of Berlin. He, not content with his onerous professorial duties and the calls of a large practice, has devoted many years to the formation of a medical library which in 1901 had become so extensive that the catalogue comprised 431 pages. But he has also been making a complete study of the work of ancient oculists and as a result has published the following works. His first book on the historical branch of the subject appeared in 1890 and was entitled "Egypt: Historical Studies of an Oculist." The second was the publication, in 1899, of the "Oculistica" of Aetius of Amida, which he gives in the original Greek and also in a Latin translation. This was followed in the same year by a "History of the Oculists of Antiquity," which treats of the therapeutics of the that such child shall forthwith be separated from the children in health. The Board trusts that the guardians will give the matter their careful consideration and will take such action as is requisite with a view to secure that all children of the classes specified who come under their care may be as promptly as possible removed to such institutions of the managers as are suited to their respective requirements.

THE TORQUAY EDUCATION COMMITTEE AND CHILDREN WITH DEFECTIVE EYESIGHT.—At a meeting of the Torquay education committee held on Sept. 18th, Dr. H. V. Mackenzie was appointed to examine children with defective eyesight at a honorarium of £50 per annum. There was some opposition to the appointment, which will have to be confirmed by the town council, and a letter was read from the Local Government Board stating that, although in any case where there was reasonable suspicion that a child was suffering from an affection of the eyes of a contagious character the local education authority might call in a medical practitioner to examine the child and pay him a reasonable fee for so doing, the authority was not authorised to incur expenditure in the employment of a medical man to examine school children with a view to remedies being prescribed in cases where the eyesight was defective.

THE DELAMERE SANATORIUM.—A scheme has been prepared and is now under the consideration of the Charity Commissioners for the future administration of the Crossley Sanatorium at Delamere and the Manchester Hospital for Consumption and Diseases of the Throat and Chest, consisting of an out-patient department in Manchester and an in-patient hospital at Bowdon. They are to be consolidated and managed as one institution under the title of the Manchester Hospital for Consumption and Diseases of the Throat and Chest. There is to be a body of 16 trustees entitled to hold office for life, in whom all property is to be vested. The institution is to be maintained, extended, and supported by means of bequests, annual subscriptions, or other gifts, the contributions and payments of patients, the income derived from the invested funds, and in case of need the capital may be used under certain conditions. The governors are to have the power of nominating new trustees. The personal estate of the institutions amounts to about £80,000.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, 41 and 43, Maddox-street, Bond-street, London, W.
Midwifery for Nurses. By Henry Russell Andrews, M.D., B.S. Lond., M.R.C.P. Lond.; Assistant Obstetric Physician to, and Lecturer to Pupil-midwives at, the London Hospital; Examiner to the Central Midwives Board. Price 4s. 6d. net.

CLAYE, BROWN, AND CLAYE, "Courier" Office, Macclesfield.
Why Vaccinate? By Harold W. Whiston. Second edition. Price 6d. (By post, 7½d. net.)

CONSTABLE, ARCHIBALD, AND CO., LIMITED, London.
Practical Methods of Inorganic Chemistry. By F. Mollwo Perkin, Ph.D., Head of Chemistry Department, Borough Polytechnic Institute, London. Price 2s. 6d. net.

FISCHER, GUSTAV, Jena.
Die heutige Lehre von den pathologisch-anatomischen Grundlagen der Herzschwäche. Kritische Bemerkungen auf Grund eigener Untersuchungen von L. Aschoff, Professor in Marburg i.H., und S. Tawara, Arzt in Japan. Price M.2.
Arbeiten aus dem Königlichen Institut für Experimentelle Therapie zu Frankfurt a M. Herausgegeben von Geh. Med.-Rat Prof. Dr. P. Ehrlich. Heft II. (Aus der Prüfungstechnischen Abteilung): R. Otto, Die staatliche Prüfung der Heilsera. Price M 3.
Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Herausgegeben von Dr. J. Widmark, Professor der Augenheilkunde am Carolinischen Medico-Chirurgischen Institut zu Stockholm. Achtes Heft. Price M.6.

HOEPLI, ULRICO, Milano.
Commentarii di Clinica Medica desunti dalla Morfologia del Corpo Umano. Parte Speciale illustrata da Figure e Tavole. Volume Primo. Prof. Achille de Giovanni, Direttore della Clinica Medica Generale della Regia Università di Padova, Senatore del Regno. Price L 8.
Malattie dell' Orecchio, del Naso e della Gola. (Oto-rino-laringoiatria.) Dott. Tommaso Mancioli, Aiuto-preparatore della R. Clinica Oto-rino-laringoiatria di Roma, Otoiatra delle Ferrovie dello Stato. Price L.5 50.

KIMPTON, HENRY, 13, Furnival-street, Holborn, London, E.C., and 40 and 42, University-avenue, Glasgow.
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MARHOLD, CARL, Halle-a.-S.
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The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by L. M. Medland. In twenty parts. Part II. Price 7s. 6d. net, each part.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BURFIELD, J., M.B., B.S. Lond., F.R.C.S., Eng., has been appointed Assistant Medical Officer at the Bolingbroke Hospital, Wandsworth Common, S.W.

CASHMAN, JAMES P., M.B., B.S. R.U.I., has been appointed Resident Medical Superintendent of the Cork District Asylum.

DAWNAY, A. H. PAYAN, M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Ophthalmic Surgeon to the Hounslow Hospital.

DEANE, JOHN EDWARD JAMES, L.K.Q.C.P., L.F.P.S. Glasg., has been appointed Officer of Health for Eaglehawk, Victoria, Australia.

HARRIS, JOHN RICHARDS, M.D. Melb., has been appointed Public Vaccinator for the North-Eastern District, Victoria, Australia.

HILL, ARTHUR MACHEN, M.B. Melb., has been appointed Public Vaccinator for the Midland District, Victoria, Australia.

JEPHCOTT, CHARLES, M.B., B.S. Cantab., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Chester Union by the Chester Board of Guardians.

MOSSOP, E. E., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Hospital for Sick Children, Great Ormond-street, W.C.

RENDALL, PERCY, M.D., M.R.C.S., has been appointed Divisional Surgeon to the V Division of Metropolitan Police at Epsom.

SWEET, WILLIAM SYDNEY, M.B., B.S. Lond., has been appointed Officer of Health for the West Riding of Maffra, Victoria, Australia.

TIVY, CECIL B. F., M.B., B.Ch. R.U.I., has been appointed House Surgeon to the Cork Eye, Ear, and Throat Hospital.

WADE, H., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Enfield District of the county of Middlesex.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL ASYLUM.—Senior Resident Assistant Physician. Salary £200.

BIRMINGHAM ASYLUM, Rubery-hill.—Junior Assistant Medical Officer. Salary £150 per annum, with apartments board, &c.

BIRMINGHAM, GRAVELLY HILL, ASTON UNION WORKHOUSE AND COTTAGE HOMES.—Resident Assistant Medical Officer. Salary £120 per annum, with apartments, rations, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—Pathologist. Honorarium £100 per annum.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with board, residence, and washing.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £90 a year, with board and lodging.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CHORLTON AND MANCHESTER JOINT COLONY FOR EPILEPTICS, Langho, near Blackburn.—Resident Medical Officer. Salary £150 per annum, with board and residence.

EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION.—Professor of Midwifery and Gynæcology. Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

FINSBURY DISPENSARY, Brewer-street, Goswell-road, E.C.—Resident Medical Officer. Salary £140 per annum, with furnished residence, attendance, &c.

HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubbs, W.—Assistant Infirmary Medical Superintendent and Assistant Medical Officer. Salary of Assistant Infirmary Medical Superintendent £100 per annum, rising to £130 per annum, with board, apartments, washing, and attendance. Salary as Assistant Medical Officer £20 per annum.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M.).

TUESDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (1.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (3rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (4th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (6th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (3rd).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M.: Specimens will be shown by Dr. Eden, Dr. R. D. Maxwell, and Dr. H. R. Andrews. Short Communication:—Dr. Eden and Mr. F. L. Provis: A Case of Intra-ligamentous, Fibro-cystic Tumour *of the Uterus, weighing about 30 pounds,* Successfully Removed by Enucleation and Sub-total Hysterectomy. Paper:—Mr. E. E. Young: Primary Tuberculosis of the *Cervix Uteri.*

FRIDAY (5th).—WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—8.30 P.M.: *Presidential Address*:—*Dr.* L. Mark: Art and Medicine.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (1st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: *Dr. J. H.* Sequeira: Clinique. (Skin.) 5.15 P.M.: Lecture:—Sir H. D. Littlejohn: The Practice of Forensic Medicine.

TUESDAY (2nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.15 P.M.: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. L. Guthrie: Clinique. (Medical.) 5.15 P.M.: Lecture:—Mr. J. Pardoe: Misleading Symptoms in Urinary Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Collier: Local Lesions of Spinal Cord - Anatomy.

WEDNESDAY (3rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. T. P. Legg: Clinique. (Surgical.) 5.15 P.M.: Lecture:—*Dr. G. H. Savage: Lucid Intervals in Cases of Insanity.*

THURSDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Dr. G. F. Still: Head-nodding and other Curious Movements in Children.

CHARING CROSS HOSPITAL.—4 P.M.: Dr. Murray: Demonstration (Medical). (Post Graduate Course.)

FRIDAY (5th).—POST-GRADUATE COLLEGE (West London Hospital, [illegible] ical Clinics. 2.15 P.M.: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. D. Grant: Clinique. (Ear.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Collier: Local Diseases of Spinal Cord - Diagnosis.

SATURDAY (6th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the *subscription is* paid, and *not* to THE LANCET Offices.

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SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the *terms* of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

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diseased eye among the Egyptians, Hindoos, Greeks, Romans, and Byzantines. In 1902 he published, with the assistance of Herr M. J. Lippert, a most competent Arabic scholar, the Oculistics of Avicenna; more recently a study of all the known works of Arabic oculists; and finally, in 1905, a "History of Arabic Oculist Science." It is to be hoped that now that the committee of the Berlin Corpus of Latin Inscriptions has published the volume containing the oculist seals Dr. Hirschberg will write a medical and pharmaceutical commentary upon these texts, for the comprehension of which his erudition renders him *pre-eminently qualified*.

DENTISTS' CHARGES TO MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—May I ask your own and others' opinions anent what follows? I had a set of artificial teeth inserted lately by the son of a brother practitioner, an L.D.S., *only a few years in practice* and am charged therefor £30 sterling. The gold is said to be 18·17 carat and the teeth pin set in ebonite. The upper and lower sets weigh altogether (gold, ebonite, and teeth) nearly two and three-quarter ounces avoirdupois (2¾ oz). Please state if you think the above charge is a fair charge. Also state if you think doctors should expect the services of surgeon-dentists at less than the usual prices charged?

I am, Sirs, yours faithfully,
"MA CONSCIENCE" £30.

*** The opinion sought is a little difficult to give. The fees for artificial dentures differ according to circumstances but we understand that 30 guineas is considered by the best class of practitioners as a good fee. Dental surgeons do not as a rule charge medical practitioners unless the latter desire that a charge should be made and then it is the general practice to charge half the usual fee.—ED. L.

THE ARMY MEDICAL DEPARTMENT OF THE ARGENTINE REPUBLIC.

THE Argentine Republic with a population of 5,190,000 inhabitants maintains a regular army of 1335 officers and 7868 men, but were the reserves to be called out it is said that these numbers would mount up to 8000 and 200,000 respectively. The medical department, which was established by decree in October, 1888, is an autonomous corps under the command of a surgeon-general who has the relative rank of brigadier-general. The number and rank of his subordinate officers are as follows:—Surgeon-colonels, 3; surgeon-lieutenant-colonels, 6; surgeon-majors, 12; surgeon-captains, 12; surgeon-lieutenants, 12; apothecary-major, 1; apothecary-captains, 3; apothecary-lieutenants, 12; apothecary-sub-lieutenants, 18; veterinary-captain, 1; and veterinary-sub-lieutenants, 15. The uniform worn by members of the medical corps resembles that of the infantry of the line, the distinguishing badge being a caduceus encircled by a laurel wreath. Three inconspicuous buttons and button-holes admit of the sleeves being rolled up to the wearer's elbows. In May, 1902, a military medical school was constituted by decree with the object of completing the training of candidates for commissions in the Medical Corps. Students in medicine of two years' standing who have satisfied examiners in zoology, botany, anatomy, and histology are eligible for admission. In the case of postulants who are desirous of serving as apothecaries or veterinary surgeons a single year of preliminary professional study suffices. The school is attached to the military hospital at Buenos Ayres, a very well-appointed establishment with 268 beds. The probationers are subject to military discipline and wear uniform, but although all expenses for food, lodging, clothing, and books are borne by the State a sufficient number of recruits to fill vacancies cannot be obtained. In 1904 there were only 28 medical pupils under instruction, four candidates for the position of apothecary, and eight for that of veterinary surgeon. For the foregoing details we are indebted to an exhaustive article in the *Archives de Médecine et de Pharmacie Militaires* by Surgeon-Major Romary of the French army.

GREEN TEA.

To the Editors of THE LANCET.

SIRS,—Will any of your readers with better opportunities of judging than I have had be kind enough to give their experience of "green" tea as a beverage, saying whether, and, if so, for what reasons, it should be regarded as more or as less wholesome than "black" tea of equally good quality?

I am Sirs, yours faithfully,
Sept. 19th, 1906. G. S. B.

A MOTOR CAR MEDICINE CASE (TABLOID BRAND).

WE have received from Messrs. Burroughs, Wellcome, and Co., of Snow-hill Buildings, Holborn Viaduct, London, E.C., a neat black japanned metal case containing simple remedies and such accessories as will enable first-aid treatment to be administered in the event of certain injuries occurring in a motor-car accident. The case measures 7½ inches by 4¼ inches by 2 inches and is a little over an inch deep. The outfit is thus quite compact and will be useful to the motorist, inasmuch as it will enable him to apply first-aid treatment either in slight or serious cases pending the arrival of the medical man. The contents of the case are varied to meet individual requirements but the stock pattern is fitted out as follows: "Tabloid" pleated dressings comprising one packet of two triangular bandages, one two and a half inches and one one-inch open-wove bandage, one ounce absorbent cotton-wool, and one ounce boric lint. The dressings are compressed and therefore occupy very little space. Then there are one pair of folding scissors, an sponge, two camel hair pencils in glass tube, three yards of half plaster in a tin, court plaster, oiled gauze, safety pins and onll pins. Also there are bottles of carron oil, sal volatile and cast (with brush), and tubes of "borofax" and "protective skin." drugs include tabloid brand products as follows: quinine b gr. 2, soda-mint, cascara sagrada gr. 2, phenacetin compo bismuth salicylate gr. 5, potassium chlorate and borax, and brand products, lead subacetate and boric acid (perfumed for use lotion).

ACETONE COLLODION.

Mr. George M. Beringer has recently communicated a paper to American Pharmaceutical Association (*Chemist and Drug* Sept. 22nd, p. 472) on an improved form of collodion, which prepared by substituting acetone for a mixture of alcohol and as a solvent for the pyroxylin. Acetone possesses remarkable sol properties and is capable of dissolving a wider range of than the official mixture of alcohol and ether. Acetone coll forms an excellent basis for the external application of the phenols, iodine, iodoform, cantharidin, and many other It contains five grammes of pyroxylin and one gramme of made up to 100 cubic centimetres with acetone. A collodion is prepared from powdered cantharides 60 pyroxylin four grammes, camphor one gramme, and suffic acetone to produce 100 cubic centimetres of product. It exert strongly vesicant action. Some of the so-called "liquid court plaster are simply solutions of pyroxylin in acetone.

A SCISSORS SHIELD FOR CIRCUMCISION.

To the Editors of THE LANCET.

SIRS,—My attention has been called to Mr. Haines Cory's clai the originator of the above which he says has been suggested by November, 1900, as a "Frænum Scissors for the Tongue." admitting that there is some resemblance between the two instru I maintain there is a very wide difference, my instrument as unsuitable for cutting the frænum as Mr. Cory's is for circum The chief points between the two are in mine: (1) The groo central and tapers to a fine point with the object of fixing the fo tightly and preventing slipping; (2) the shield and two blades r separate for cleansing purposes; and (3) my instrument is strong larger. Finally, I have never seen Mr. Cory's frænum scissors to-day.

I am, Sirs, yours faithfully,
HENRY DUTCH, M.D. Brux.,
Berkeley-street, W., Sept. 25th, 1906.

◆

G. R.—We doubt whether there is any one book on the histo medicine which will "meet with the requirements of the Lo M.D." Possibly information on the point might be obtained thr inquiry from the Academic Registrar at the University. Our c spondent will find the following books of use: Dr. John Fr "A History of Physick from the Time of Galen to the Sixte Century." First published in 1750. Dr. E. T. Withington, "Med History from the Earliest Times," 1894. Dr. Munk's "Roll of Royal College of Physicians of London" might also be consulted.

X.—A reference to the Medical Directory will show our correspon that there are British practitioners at work in the Argen Republic. For information as to formalities to be complied for leave to practise he is advised to apply to the Consul-General the Republic in this country, Dr. Sergio Garcia Uriburu, 3, Budge-r Cannon-street, London, E.C.

Mr. J. Clarke.—Permission to practise in Monaco is granted foreigners as a favour solely by permission of the Prince of Mon and application should be made to him through the Consul Gene for Monaco in London, Mr. Theodore Lumley, 37, Conduit-str Bond-street, W.

COMMUNICATIONS not noticed in our present issue will receive attenti in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 27th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb	Remarks.
Sept. 21	30·30	N.E.	...	101	65	53	55	57	Overcast
" 22	30·37	E.	...	102	63	53	54	56	Cloudy
" 23	30·43	N.E.	...	99	59	51	54	57	Cloudy
" 24	30·43	N.E.	...	96	61	50	50	53	Overcast
" 25	30·48	E.	...	101	62	49	49	54	Fine
" 26	30·56	N.	...	95	62	48	49	53	Fine
" 27	30·60	N.E.	...	91	61	48	50	53	Foggy

During the week marked copies of the following newspapers have been received: *Chard and Ilminster News, Wigan Observer, Westminster Gazette, Birmingham Daily Post, Daily Telegraph, Hampshire Advertiser, Southampton Echo, Morning Advertiser, Daily News, Edinburgh Evening News, Wolverhampton Midland Express, Newcastle Chronicle, Herts Mercury, Scientific American, Glasgow Herald, Leeds Evening Herald, Nottingham Express, Ca*